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Galaxy

Science Fiction

LARRY NIVEN *The Children of the State*

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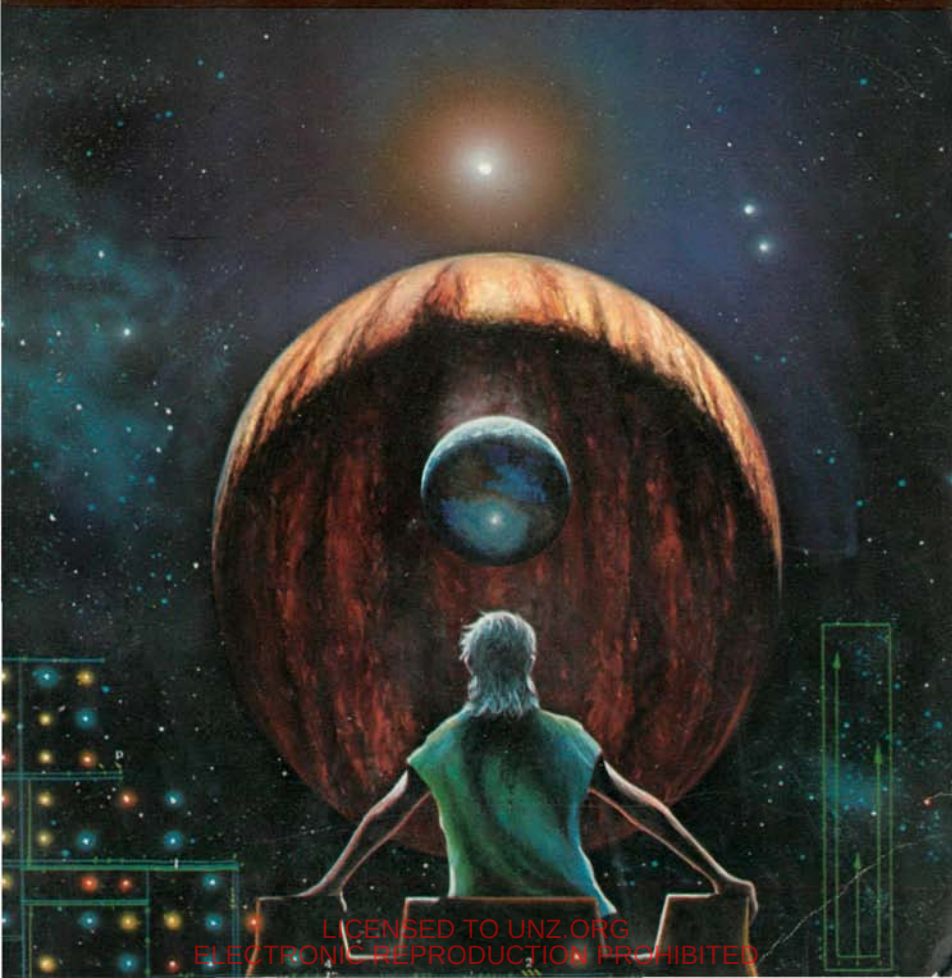

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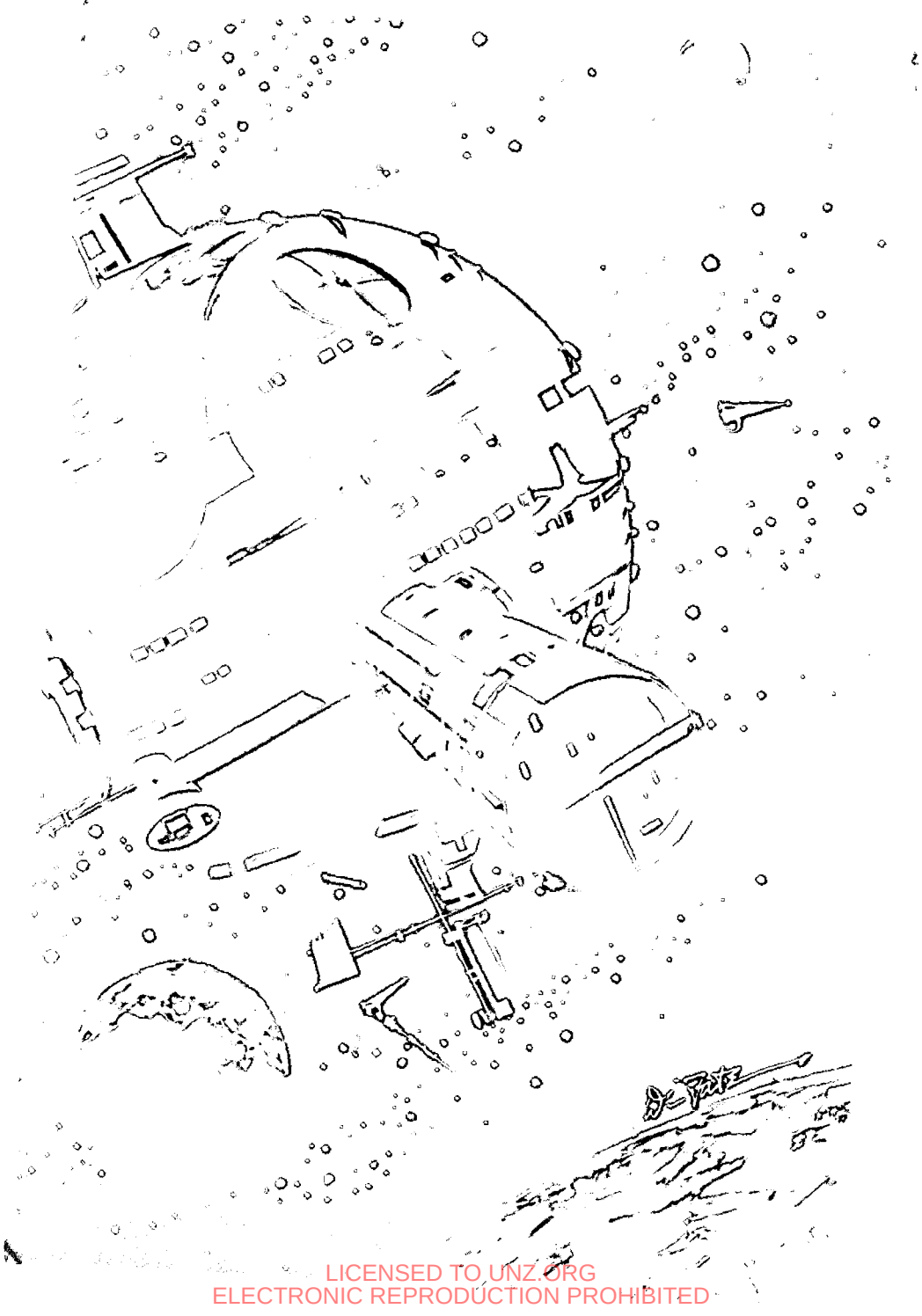

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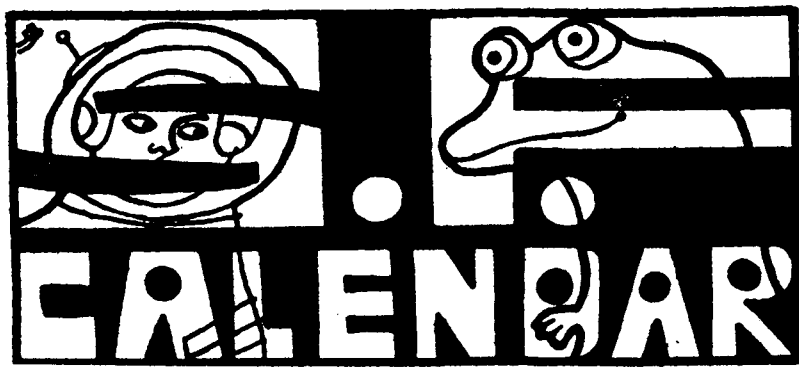

SEPT. 24-26. PgHLANGE VIII, Viking Motel, Pittsburgh PA. GoH: Joe Haldeman. Registration: $4 in advance, $5 at the door. Special membership plus banquet: $11. For info: Barbara Geraud, 1202 Benedum Trees Bldg., Pittsburgh PA 15222.

OCT. 15-17. WINDYCON III, Sheraton-Chicago Hotel, Chicago, Ill. GoH: A.J. Budrys. Fan GoH: Bev Swanson. For info: WINDYCON, Box 2572, Chicago, Ill. 60690.

OCT. 22-24. ANONYCON 2, Airport Holiday Inn, Buffalo, N.Y. GoH: Samuel Delany. Registration: $8. For info: Anonycon 2, % Karen Klinck, 142 Snughaven Ct., Tonawanda, N.Y. 14150.

OCT. 29-31. ALPHA DRACONIS, Holiday Inn, downtown Toronto, Ontario, Canada. Registration: $7 until Sept. 30th, $10 after. Guests: Hal Clement, Gordon Dickson, Kelly Freas, Roy Thomas. For info: Draco Film Society, 1384 Ludbrook Ct., Mississauga, Ontario, Canada L5J 3P4.

NOV. 5-7. TUSCON IV, Sands Motor Hotel, Tucson, AZ. GoH: Ted Sturgeon. Registration: $4 until Oct. 31st, $5 after; supermembership: $10. For info: TUSCON IV, Box 49196, Tucson, AZ 85717.

JULY 1-4, 1977. WESTERCON 30, Totem Park Residence, University of British Columbia, Vancouver, BC, Canada. GoH: Damon Knight. Fan GoH: Frank Denton. Special guest: Kate Wilhem. Membership: $6 until July 5th. For info: WESTERCON 30, Box 48701 Sta. Bentall, Vancouver, BC, Canada V7X 1A6.

SEPT. 1-6, 1977. SUNCON. 35th World Science Fiction Convention, Fontainbleu Hotel, Miami Beach, Fla. GoH: Jack Williamson. Fan GoH: Robert Madle. Membership: $7.50 attending, $5 supporting. For info: WORLDCON 35, Box 3427, Cherry Hill, N.J. 08002.

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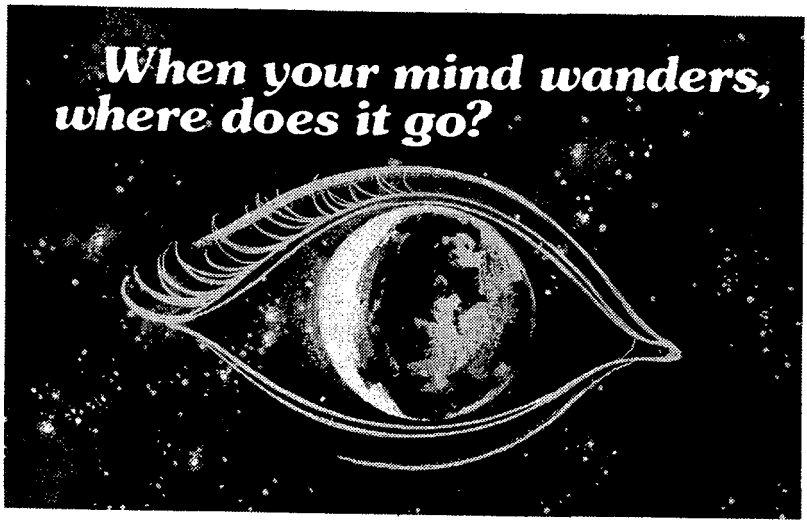

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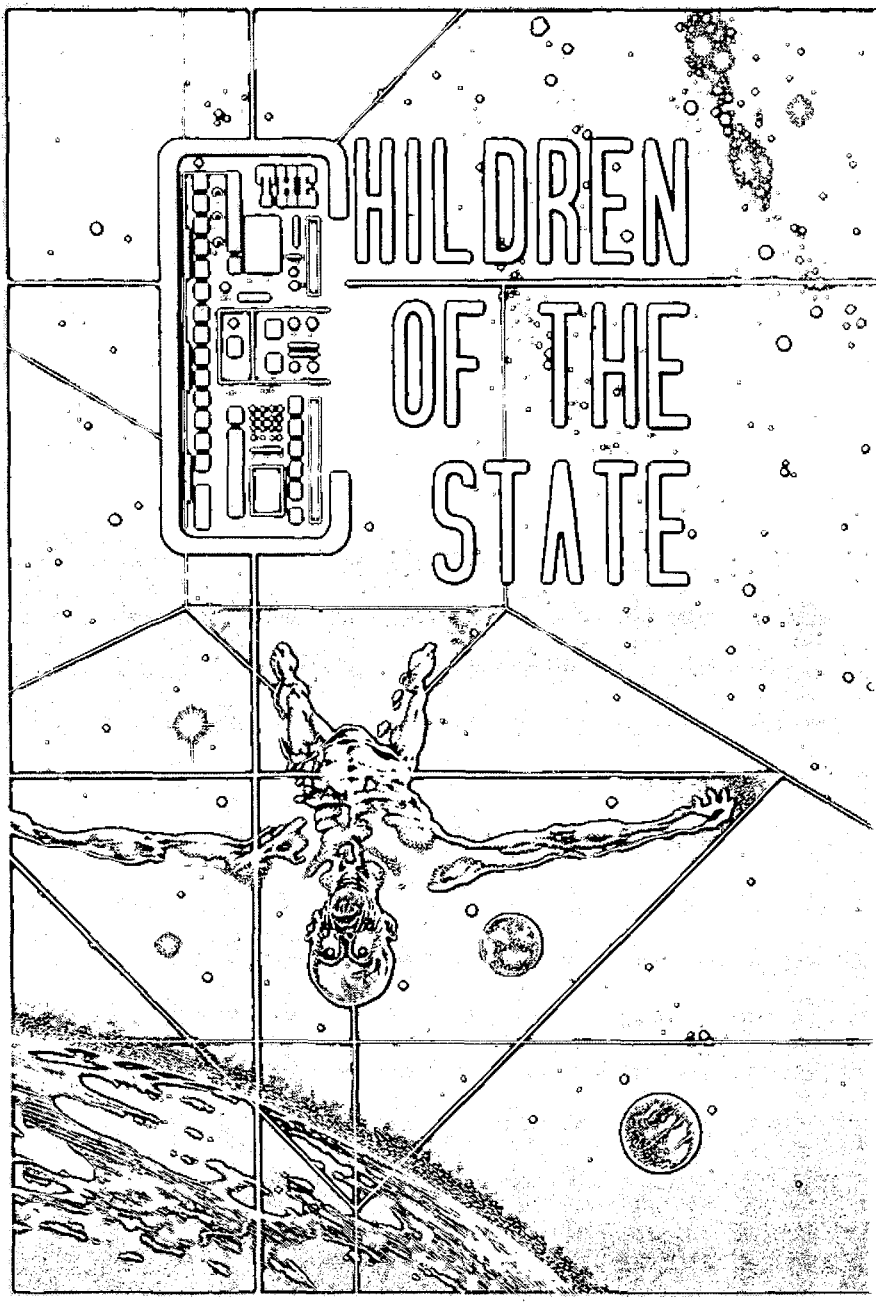

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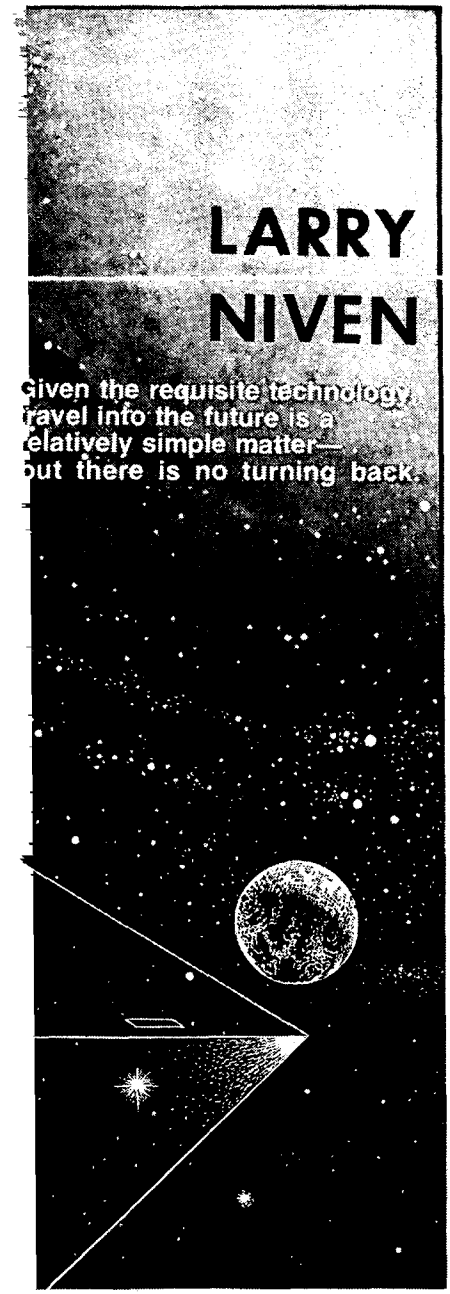
LARRY
NIVEN
Given the requisite technology, travel into the future is a relatively simple matter— but there is no turning back.

THE HOUSE DIVIDED

I

HE REMEMBERED POSTERS. He had bought them in a little shop in Kansas City and taped them to his bedroom wall. They had stayed for a year before he tired of them: blown-up photographs of the planet Earth, taken from close orbit and from behind the Moon, by Apollo astronauts.

In his memory Earth was all the shades of blue, frosted with masses and clots of white cloud. Even the land was blue tinged with other colors, except where a rare red-brown patch of desert showed through.

CORBELL Mark II (Corpsicle Or Rebellious Brain-Erasure: Lousy Loser) hovered in black space within a glowing arc of dials and gauges. The youthful body of a brain-wiped State criminal was now bald and wrinkled and nearly worn out, and very thin from its time in the cold sleep tank. Stars glared around it. Clouds and Sea and desert landscape raced past three hundred miles below.

It could have been Earth. Even the shapes of seas and continents seemed vaguely familiar. There was far too much reddish-brown in the mix . . . but after all . . . three million years. He had spent several seconds flashing above the

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Swartzchild radius of a black hole as massive as a hundred million suns. In that time three million years had passed.

* * *

He tried his voice. It was husky, rusty with long sleep, and pitched too high. "Is it Earth?"

"I don't know," said Peerssa.

"Peerssa, that's silly. Is this the solar system or isn't it?"

"Try not to get excited, Corbell. I don't know if this is Sol system. The data conflict. This is the system from which came messages. I followed them to their source."

"Let's hear these messages. Why didn't you wake me earlier, before we were committed?"

"We were committed before I found the anomalies. I waited until we had achieved orbit before I woke you. I was afraid you might die of the shock. You can't tolerate another spell in cold sleep, Corbell. You would not live to reach another star."

Corbell nodded. This last of his thawings was the worst yet. It was like waking with Asian flu and a brandy hangover. He felt sick and ugly. Less than ten years ago, by the evidence of his memory, the State had brought a young man to life. Ten years awake, plus a century and a half in cold sleep, had left of the young man a withered stack of bones. He had grown mortally afraid of senility . . . but his thoughts seemed clear.

"Let's deal with the messages," he said.

What appeared on the Womb Room walls was not quite reality. Peerssa controlled those images; Peerssa projected what his senses picked up from the world below. Now Peerssa made a window appear in what had been deep space. Through the window Corbell saw two translucent cubes, slowly rotating. Within the cubes were shapes and figures formed in much tinier cubes—about a hundred per side.

"A laser was beamed at me while I was still thirty-two light years distant from this star system," said Peerssa. "There were two separate messages, two sequences of dots and gaps, each totaling one million, thirty thousand, three hundred and one bits each. One hundred and one cubed. One hundred and one is prime. There is some ambiguity, of course; I may have reversed left for right."

It was not the best way to make pictures, but Corbell could recognize a man and a woman holding hands . . . the same figures in each cube. There were polygons of assorted sizes, in rows, and rough spheres. Peerssa created a red neon arrow for a pointer. "In your opinion, are these intended to represent human beings?"

"Sure."

"He indicated the similar figures in the right-hand cube. "And these?"

"Yes."

The arrow returned to the left-hand cube. "This was the first message to arrive. These figures may represent atoms, carbon and hydrogen and oxygen. Do you agree?"

"For all of me they do. Why would they be there?"

"They form the basis for protoplasmic chemistry. This bigger row,

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might it be a solar system? The large, nearly spherical hollow object would be the sun. The symbols inside may be four hydrogen atoms next to a helium atom. The row of smaller polygons would be planets."

"All right. Is it the solar system?"

"Not unless the solar system has changed radically. What about this second cube? Why are these human figures different from the others?"

Corbell looked from one to the other. In the first message the figures were solid, except for hollow bubbles to mark the lungs. The cubistic figures in the second group were hollow, and there was an X of small cubes running through them. "I think I see. They're crossed out in that second message. And those rows of polygons look like eight more stellar systems, suns and planets, drawn smaller. Some double suns."

"What message do you see?"

"Eight star systems, two with double stars. Crossed-out hollow people. All right, read it this way. 'To whom it may concern. We are human, we fit the given model, our chemistry is based on carbon and water. We come from a star system that looks like this. The similar people who come from these eight other systems look human, but they aren't. Accept no substitutes.' Does that sound right?"

"I agree."

"Well, it's a very human thing to say. I could see your precious State sending a message like that, except . . . except the State didn't have any natural enemies. *Everyone* belonged to the State.

"So this is the message you followed home?"

"Yes. I felt that human beings must have sent it, and I was not sure of finding Sol otherwise."

"How did *they* find *us*? Whoever sent that beam would have had to find us a couple of hundred light years out. We were still moving at near lightspeed, weren't we?"

"The exhaust from a ramship would be most conspicuous to the right instruments. But the returning beam was very powerful. Sending it required strong motives."

Corbell smiled in evil satisfaction. "The strongest. Heresy. Your State came apart, Peerssa. The colonies revolted. The State around Sol must have wanted to warn any returning starships. *Don't stop at the colonies.*"

"The State was a water-monopoly empire, as you told me. Such entities do not die by internal revolution. They die only by conquest by an outside force."

Corbell laughed. He didn't like the sound: a high-pitched cackle. "I'm not a history teacher, Peerssa, you idiot! I'm an architect! It was a friend who told me about water-control empires, and he's one of—he *was* one of these guys who says everything in absolutes because it gets more attention. I never knew how seriously to take him."

"But you believed him."

"Oh, a little, but what empire ever lasted seventy thousand years? If you hadn't taken me so damn seriously, we'd have been home . . .two million, nine hundred and thirty thousand years ago." Corbell was studying the pattern of the sun and planets in the left-hand

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cube. "We're in a system that matches that picture?"

"Yes."

There was the sun, then three small objects, then a large object with a conspicuous lump on it (a large moon?), then three medium-sized objects . . . "The Earth isn't there. Otherwise—"

"Do you see the body now rising beyond this world's horizon?"

For a split second Corbell thought it was the Moon rising above the world's hazy edge. It was half full. It showed bigger than the Moon. It glowed in white and orange-white bands along the lighted side. What should have been the dark side glowed just at red heat.

Peerssa said, "This oxygen-atmosphere world we circle is in orbit about that larger body. The primary is a massive gas giant, hotter than theory would account for. There are other anamolies."

"We're in orbit about a *moon* of that thing?"

"I said that, yes."

Corbell's head whirled. "All right, Peerssa. Show me."

* * *

Peerssa showed him, with diagrams and with photographs taken during *Don Juan*'s fiery fall through the system.

The sun was a young red giant, swollen and hot: of about one solar mass, but with a diameter of ten million kilometers.

Peerssa showed him the inner planet next to a map of Mercury. Granted the two planets resembled each other, but this system's version was scarred and gouged in a different pattern

The second planet had considerably less atmosphere than Venus, and what there was included some oxygen. But it was the right size and in the right place.

There was nothing in Earth's orbit.

The third planet remarkably resembled Mars, but for the lack of moons and the great featureless *mare* marring one face. "There are curious parallels all through the system," Peerssa remarked.

Corbell's reaction to these revelations was a slowly mounting anger. Had he come home or hadn't he? "Right. Curious. What about Earth?"

A moon much like the Earth circled this fourth planet . . . itself a world as massive as Jupiter, but far hotter than a world at this distance from its primary ought to be, even given the hotter sun. It was pouring out infrared radiation in enormous quantities, and more dangerous radiation too.

"And the other moons? Their orbits would be funny anyway; they'd have been altered when the Earth was moved into place, if that's Earth."

"I thought of that. But I can find no moon of this world analogous to Ganymede, the biggest of the Jovian moons."

"All right, go on."

The fifth planet was an unknown, an ice giant in a drunken skewed orbit that took it from just inside the Jovian's orbit almost out to the sixth planet's. It was near the Jovian now, naked-eye visible from *Don Juan*. Peerssa showed him a close view of a marble banded in pale blues.

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"This system may be much younger than Sol system," Peerssa said. "The skewed orbit of the fifth planet has not had time to become circular via tidal effects. The Jovian is hot because it only recently condensed from the planetary nebula. The star has not yet settled down to steady burning."

"What about this Earthlike world? Could it have evolved that fast?"

"No."

"I didn't think so. And that third planet looked a lot like Mars. But not enough, dammit!"

"Then observe the sixth."

The sixth planet . . . well, it looked like a target. *Don Juan* had crossed nearly over its north pole. Nestled within banded white rings was the fainter banding of an ice giant planet, in very pale blues and greens. The oval shadow of the planet lay across the rings, rendering the transparent inner ring invisible. The sharp-edged rift must be Cassini's Divide, Corbell thought. He found other, lesser rifts probably caused by tides from smaller moons. "Saturn," he said.

"It resembles Saturn most remarkably. I went to some effort to take our course near this sixth planet. I tried to find discrepancies—"

"That's Saturn!"

"But nothing else matches my memory!"

"Somebody's been mucking with the solar system. Three million years. A lot could have happened."

"The sun Sol could not have become a red giant in three million years. It is too young. Theory will not allow it. Theory does allow a similarity in the formation of planetary systems."

"That is *Saturn*. And *that* is Earth!"

"Corbell, is it not possible that State citizens settled a moon of a Jovian world? Might they have recreated Saturn's rings for nostalgia and the love of beauty? You tell me. Is the love of beauty that powerful?"

It was a strange concept. It had its attractions, but . . . "No. It doesn't hold up. They'd have put the rings around the Jovian for a better view. And why would they build another Mars?"

"Why would the State destroy the topography of Mercury? What removed two-thirds of the atmosphere of Venus and changed its chemistry? Uranus is missing. Ganymede is missing: a body bigger than Mercury. A gas giant more massive than Neptune orbits nearer the sun in a skewed orbit."

"That hotter sun could have burned away part of Venus's atmosphere. Mercury . . . hmmm."

"What changed the sun? How could the Earth have been moved at all? Corbell, I can't decide!"

There might have been agony in the computer's voice. Indecision was bad for men, but men could live with it. A man's memories could fade and grow blurred. But not Peerssa's . . .

"They moved the Earth because the sun got too hot," Corbell speculated.

"What do you imagine? Did the State moor huge rocket motors at the North Pole and fuel them with Venus's atmosphere? The ocean would have flowed to cover the

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northern hemisphere! The Earth's surface would have ripped everywhere, exposing magma!"

"I don't know. I don't know. Maybe they had something besides rockets. But that was Mars you showed me, and *that's* Saturn, and *that's* Earth. There! Couldn't that be the coast of Brazil?"

"It does not match my memory." With evident reluctance Peerssa added, "If other evidence were not considered, that shoreline could be the edge of the Brazilian continental shelf, altered by the shifting of tectonic plates."

"The ocean must have dropped. Maybe some megatons of water vapor got left behind when they moved the Earth."

"The State could not have moved the Earth. There would have been no need, because Sol was not an incipient red giant."

"Computer! You can't go against your theories, can you? What if we were in the ergosphere of a black hole longer than we thought? We might have lost more than three million years. In tens of millions of years, could the sun be a red giant?"

"Nonsense. We would never have found Sol at all."

That was the last straw, because it was true. Corbell was an uncomfortably old man with a cold-sleep hangover. "All right," he said between his teeth, "you win the argument. Now, for purposes of discussion, we are going to assume that that planet is Earth. At long last we have come home to Earth. Now how do I get down?"

It developed that Peerssa had that all figured out.

II

Corbell's pressure suit looked clean and new. It was form-fitting, with a bulging bulb of a helmet and a pointy-ended white spiral on the chest. He would not have been surprised to find it rotted with age. It had been waiting for nearly two hundred years, ship's time.

He went out the airlock with the suspicion that he was going to his death. He had never done this before . . . and in fact the suit held up better than he did. Panting, perspiring, with his pulse thundering irregularly in his ears, he maneuvered himself at the end of a tether and turned for a look at *Don Juan*.

The silver finish had dulled. Corbell winced at the sight of a gaping hole in one of the probes. Peerssa had never mentioned a meteor strike. It could as easily have hit the life support system.

Four of the probes were missing.

The biological package probes were what made *Don Juan* a seeder ramship. Each of the probes held a spectrum of algaes with which to seed the unbreathable reducing atmosphere of some nearby Earthlike world, to turn the atmosphere into breathable air and the world into a potential colony. Of course they had never been used for that purpose. Deprived in detail of his civil rights, Corbell had stolen the ship and lit out for the galactic core.

There had been ten probes mounted around *Don Juan*'s waist. Now there were six. "I ran the onboard hydrogen tank nearly empty," Peerssa explained. "I had to use four of the thrust systems in the probes to make orbit around

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Earth. Afterward I put the probes in orbits as relay satellites. You will be able to call me from the surface, wherever you are."

"Good."

"How do you feel? Can you survive a re-entry?"

"Not yet. I'm out of shape. Give me a month."

"You'll have it. You'll have exercise too. We must make ready one of the probes for your descent."

"I'm going down in one of those?"

"They are designed to enter an atmosphere. *Don Juan* is not."

"I should have thought of that. I never did figure a safe way to get down. Aren't you coming down yourself?"

"Not unless you so order."

Small wonder if he sounded reluctant. It came to Corbell that Peerssa's body was the ship. He could be a total paraplegic if he survived reentry. Corbell said, "Thomas Jefferson freed his slaves on his death. Can I do less? After I'm down, living or dead, magnanimously I free you from all orders previous or subsequent."

"Thank you, Corbell."

He had trained to work in a pressure suit—while suspended in a magnetic field, not in actual free fall—but that was long ago, and he had trained in a young body. The work was hard. On the second day he hurt everywhere. On the third he was back at work. He would stop only when Peerssa insisted.

"We won't try to build you a life support system," Peerssa said. "We'll put what you need in the capsule with you and fill the capsule with plastic foam. Your suit will be your life support system."

But even that involved moving large masses, and manhandling the bulky cutting laser for hours at a time. The algae tanks and the machinery that served them had to be removed in inspection-hatch-sized pieces. Corbell dared not rip the hull. His life could depend on its integrity.

He needed long rest periods. He spent them in the Womb Room, watching films of *Don Juan*'s entry into what Peerssa now called (rightly or wrongly) the solar system.

For a computer, Peerssa had been starkly ingenious. Corbell would not have thought of using the package probes as thrusters. Peerssa had almost failed to find Earth at all; for the big new moon of the red hot gas giant Peerssa now called Jupiter was just *outside* the band where Peerssa was searching for a habitable planet. Peerssa had nearly departed Sol with Corbell still in cold sleep, to search nearby systems for remnants of the State. . . .

Corbell would probably have died en route.

Apparently the question of where they were no longer bothered Peerssa. It had only required Corbell's order to stop his worrying about it. But at the time, Corbell gathered, Peerssa was frantic. He had used fuel he couldn't spare to make close flybys past Saturn and Mercury.

Now Corbell looked down at the Earth and yearned. "All the mistakes I made, and still I got here. The mistakes all canceled. If I hadn't turned the receiver back on

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you couldn't have beamed your personality into the computer. I'd have wrecked the ship trying to run all the way at one gravity. If I'd been right about the galactic core I'd have died of old age, that far from home. It's like something led me back here."

"Your records call you an agnostic."

"Yeah. I'm whistling in the dark. I keep thinking I'll just *barely* get killed landing."

He was taking a long rest period in celebration. He had finally finished cleaning debris out of the probe warhead. With a meal in his hand—a layered sandwich baked like a cake—he watched the landscape roll below him. A dull red highlight gleamed on the nightside ocean, below Jupiter.

"Where do I want to land? Is there any sign of civilization down there?"

"I detect generation and use of power in three places." On the huge blue face of the planet a green arrow suddenly pointed at a green grid pattern. "Here, and on the other side of the world, and in Antarctica. My orbit does not cover Antarctica, but I can land you there."

"No, thanks. Isn't that just about California?" Thinking: wait a minute, the west coast ought to *bulge*. And where's Baja California? From what seemed to be mid-Mexico the coast was a convex sweep all the way up to what must be Alaska.

"Most of what you called California and Baja California will be an island near the North Pole. I can land you there too."

"No. Wherever someone is generating power, that's where I want to land. There, where you put the grid pattern . . . which looks a little like a city, doesn't it? Right angles . . ."

"There are many clustered buildings, yes, but no strong evidence of pre-planning. *Your* era would have called it a city. I advise against your landing there."

"If they're the ones who sent the messages, they probably won't kill me. I served their ancestral State." It might be Nevada, he thought, or Arizona—it was on the seacoast now.

"The differences between—" Peerssa stopped.

Corbell got angry. "That's Earth. Earth!" The screwed-up solar system bothered him too, when he let it. "Peerssa, that was Earth's plate tectonics you were describing! Did you find the island that used to be California?"

"I found two islands that might have been California, three million years ago."

"Well, then! Did that happen by coincidence?"

"No," Peerssa lied.

"Call that area where you put the grid One City. Call the Antarctic area Three City. What about Two City? Where is that?"

"Bordering the Sea of Okhotsk in Russia."

"Land me in One City, then." More calmly he added, "I must be nuts, looking for civilization. Why do I want to spend my last days fighting a foreign language? But maybe I'll have time to find out what happened here."

Now Corbell filled the probe nose cone with medicines, food, a tank

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of fresh water, tanks of oxygen, a radio. The plastic foam would hold them. He moored more solidly the ultrasonic whistle, that would melt the foam controlled by signal from Peerssa.

He had put on muscle weight. The heart attack he feared, and thought he was prepared for, had never come. *Don Juan*'s twenty-second-century medicines had given him that. But he lived with hot wires in his shoulders: tendonitis.

At the last—braced in the middle of the ravaged nose compartment, with one hand on the spigot of the foam tank—he hesitated. "Peerssa? Can you hear me?"

"Yes."

"What will you do after I'm down?"

"I will wait until I am sure you are dead. Then I will search other systems for the State."

"You're no crazier than I am." He wondered how long Peerssa expected him to last . . . and didn't ask. He opened the spigot. Foam surrounded him and congealed.

Thrust built up under his back, held for a time, then eased to almost nothing. Presently there was turbulence. It was a powered landing, not a meteoric re-entry. The thrust built up again, held, died. The probe rotated . . . and there was a jar that drove him two inches into the foam.

Peerssa spoke in his suit radio. "May I consider myself free of your commands?"

Corbell suffered a quick, vividly detailed nightmare. "Melt the foam first!" he cried. But Peerssa was no longer bound by his orders. Peerssa would take vengeance on one whom the State considered a criminal and arch-ingrate. The foam would not melt. Corbell would die here, embedded like a fly in amber, his freedom mere yards away!

He felt a lurch. Then another. The nightmare ended. He sank through melting foam, blind, to a solid bulkhead. The foam ran from his faceplate, and he saw that the inspection hatch was wide open.

Corbell stepped into the opening and looked out and down.

Peerssa had landed the big cylinder on its side, on attitude jets. The sun, high overhead, was nonetheless a sunset sun, red and inflated. The land ran flat to a range of sharp-edged granite hills. It was all dead: browns and grays, dead rock and dust. Heat made the air shimmer like water.

The State had not provided exit ladders for a package probe. Peerssa had been clever again. The foam had run out the hatch and congealed into a foam plastic slope. Corbell walked down it, and his boots crunched, as on snow partly thawed and refrozen. He stepped out onto the soil of Earth.

The soil had died.

Three million years. Wars? Erosion? Loss of water when Earth fled inexplicably from an inexplicably expanding sun?

At this moment he didn't care. He raised hands to his faceplate—"Do not try to take off your suit. Corbell, have you left the probe?"—ready for his first breath of fresh air in a long time.

"Why not?"

"Have you left the probe?"

"Yeah."

"Good. For purposes of discus-

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sion I have spoken of this world as Earth. Now I may speak of the differences. You have landed on a world marginally habitable at best, in a region uninhabitably hot."

"What?"

"It's too hot, Corbell. Temperatures in the equatorial zone range from fifty-five degrees centigrade upward. The oceans are above fifty degrees. I find little chlorophyll absorption in the oceans, and none on land, barring certain mountain valleys. You would have done better to land near one or the other pole."

Somehow Corbell was not even shocked. Had he been half-expecting this? *My death is the end of the world*—a very human attitude. And three million years, after all—"So that's what happened to the oceans. Evaporated."

"The atmosphere holds great quantities of water vapor. Corbell, we still do not know."

"What about mountain valleys?"

"In a mountain range corresponding to Earth's Himalayas, there are valleys between one and two kilometers high. Some life has survived there."

Corbell sighed. "All right. Which way is civilization?"

"Define civilization."

"One City. No, just point me at the closest place where someone is using power."

"Four point nine kilometers distant there is minor usage of power. I doubt you will find people, or even living beings. The power level has not varied since we made orbit. I think you will find nothing but machines running automatically."

"I'll try anyway. Which way?"

"West. I will guide you."

III

Corbell had not gone hiking in a long time.

The suit was not uncomfortable. Most of the weight of equipment rested on his shoulders. The boots were not hiking boots, but they fit. He set out in a rhythmic stride, breathing the canned air, letting his attention rove the scenery . . . and had to stop very soon. He'd chosen too quick a pace.

He rested, then set out in a more leisurely stroll. It was level land: not ankle-breaking country, though he had to watch his footing. It was packed earth with rocks inset, and there were gentle wind-carved risings and fallings-off.

Peerssa led him to the range of hills and apparently expected him to walk straight across them. Corbell turned left until he could find an easier slope. He found he was grumbling subvocally . . .

He had had to grumble subvocally for lo, these eight years waking time in which he had grown one hundred and eighty years old while three million years passed on Earth. Grumble aloud and you couldn't know what Peerssa might pick up and take as an order. Goddam literal computers, he grumbled. Sleep tanks and super-medicines that don't keep you young. Air and cooling equipment getting heavier with each step. Why couldn't they have put a belly band in this suit? A belly band was the greatest invention since the wheel. It let a hiker carry the weight on his hips instead of his back. If the State had had its head screwed on right—

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Which was silly. The suit was designed for free-fall and use aboard ship. Not hiking. And if Peerssa took orders, it was a damn good thing. And he was lucky to be on Earth at all. And, Corbell thought as he topped the crest, he was damn glad to be here. Puffing, bent over so he could pant better, half-listening for the heart attack he'd been expecting for so long, it came to him that he was happy.

Yeah! In three million years, probably no human being had ever done what he had done. Be nice if there were someone to brag to.

He saw the house.

It was on a higher crest of hills beyond this one. Otherwise he might not have seen it. It was just the color of the hills: gray and dust-brown; but he saw its regular shape against the blue of sky. It was set against the rock slope.

It took him another two hours to reach it. He was being careful with himself. Even so, he knew how his legs would hurt tomorrow, if there was a tomorrow. He was two-thirds of the way up that second range of hills when he found the remains of a broken road. Then it was easier.

The house was extravagantly designed. The roof was a convex triangle, almost horizontal, with the base against the hill itself. Below the roof were two walls of glass, or of something stronger. The house's single room was exposed to this single voyeur, who perched precariously on the slope and clutched at a boulder with thick gloves. It was, he thought, a hell of a place to build a house.

He pressed his faceplate against the glass-like material.

The floor was not quite level. Either the hill itself had settled, or architectural styles had changed more than the architect in Corbell was willing to believe.

He was looking into a living-room-sized area with what had to be a bed in the middle. But the bed was two or three times bigger than king size, and it had the extravagant shape of a '60s style Hollywood pool. The curved headboard was a control board fitted with screens and toggles and hi-fi grids and a couple of slots big enough to deliver drinks or sandwiches. In the darkness above the bed hovered a big wire sculpture or a mobile or even some kind of antenna; he couldn't tell.

But two pinpricks of yellow light lived in the control board.

"This is your power source, all right," Corbell reported. "I'm going to find the door."

Twenty minutes later he reported, "There's no door."

"A house must have an opening." Peerssa replied "Look for an opening that doesn't look like a door. From your description, there must be more to the house than you can see: a toilet at least, perhaps an office or a food dispensary."

"They'd have to be under the hill. Mmm . . . all right, I'll keep looking."

There was no trace of a trap door in the roof. Could the whole roof lift up in one piece, on signal? Corbell couldn't guess whether the architect would have been that wasteful of power.

If there was an entrance in the road itself, then hard dirt covered it. Corbell was getting annoyed. The house couldn't have been used in a

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hundred years; possibly a thousand; conceivably, ten thousand. Likewise the door, wherever it might be. Maybe the house had a second, lower story, now buried in the hill, door and all.

"I'll have to break in," he said.

"Wait, Corbell. Might the house have a burglar alarm? I am not familiar with the design concepts regarding private dwellings. The State built arcologies."

"What if it does have a burglar alarm? I'm wearing a helmet. I can't hear a damn thing through it."

"There might be more than bells. Let me attack the house with my message laser."

"Will it—" Will it reach? Stupid, it was designed to reach across tens of light-years. "Go ahead."

"I have the house in view. Firing."

Looking down on the triangular roof from his post on the roadway, Corbell saw no beam; but he saw a spot the size of a manhole cover turn red hot.

He saw earth below him trying to move. A ton or so of hillside spilled away from below the house, and a thing of rusted metal floated out on a whispering air cushion. It was the size of a dishwasher, with a head: a basketball with an eye in it. The head rolled, and a scarlet beam the thickness of Corbell's arm pierced the clouds.

"Peerssa, you're being attacked. Can you handle it?"

"It can't hurt me. It could hurt you. I'd better destroy it."

The metal thing began to glow. It didn't like that. It fled away in a jerky randomized path, while the red beam remained fixed on one point in the sky. Its upper body glowed bright red verging on orange. It was screaming; its frantic warbling voice sang through Corbell's helmet. Suddenly it tilted and arced away down the hill. It struck the plain hard, turned over and over and lay silent.

There was a hole in the roof now. Corbell said, "You think there are more of those?"

"Insufficient data."

Corbell climbed down to the roof and looked through. Molten concrete, or whatever, had set the bed afire. Corbell jumped down onto the flaming bedclothes, prepared to get off fast. Wrong again: it was a water bed, and his feet went right through it. He waded out, then pushed the burning bedclothes into the puddle in the middle with his clumsy gloved hands. The fire went out, but the room filled with steam.

"I'm in the house," he reported. Peerssa didn't bother to answer.

Corbell the architect looked about him.

This room, the visible part of the house, was a triangle. The bed in the center had the pleasing asymmetry of a puddle of water . . . and it *was* pleasing. There was an arc of sofa in one corner, facing the bed, and a slab of black slate in front of it, arced like the sofa and broken in the middle, as if . . . Corbell bent and lifted one end of the slab. Yeah, something on the underside, solid circuitry. This had been a floating coffee table until whatever was holding it up burned out.

From inside he could still see no doors.

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There was only one wall to inspect. He moved along it, rapping. It *all* sounded hollow.

Door controls on the headboard? Nuts. You'd have to walk clear around to the other side . . . wait, there *were* pressure points on the back side. Three of them. He pushed them.

The back wall slid down in three unequal sections.

The big one was a closet. There were half a dozen half-rotted garments in it, and heaped dust. The second was a much smaller closet, no bigger than a telephone booth, with a freeform chair in it.

A chair. Funny. Corbell went close enough to see the great hole in the bottom of the chair. A toilet? But there was no water in the bowl, and no toilet paper, except . . . except for a glitteringly clean metal sponge attached to the chair by a wire.

He stepped out of the cubical. By any terms, it was pretty basic for a house with this complexity of design. The owner should have been able to afford something better.

The closet . . . He tugged at the clothes still hanging on shaped hangers. Funny, he couldn't tell if they were made for a man or a woman. They were amazingly resilient. He tugged harder, then tried in earnest to tear the half-rotted things. They stood his full strength.

So. Say there were temporary clothes, meant to change with style, and clothes meant to last longer. The heaps of dust would be the temporary clothes . . .

He still hadn't found a door.

The third cubicle looked promising. There was nothing in it at all except for one unmarked switch like the door switch in the bathroom, and a panel of four lighted pushbuttons each with a different squiggle on it.

"I think I've found an elevator," he said. "I'm going to try it." He used the door switch. The door came up; he turned on his helmet lamp.

"Dangerous. What if the elevator takes you down and then breaks down?"

"Then you beam me another manhole to climb out of." Corbell pushed the top button. Nothing happened.

He'd expected that. He was at the top. He pushed #2.

"Corbell! Answer if you can!"

"Yeah?" There had been no sense of motion. He opened the door.

"You have changed position by four point one miles southwest and two hundred feet loss of altitude. I place you in One City."

"Yeah." Corbell looked out into a different room. He was beginning to feel like a wandering ghost. Everything was spooky, unreal.

He stepped out, around what must have been a floating desk and was now at the height of his knees. Screens and pushbutton panels set into the desk made it look like the control panel in the Womb Room; but they were ruined. It must have rained here for hundreds of years.

There was a rug like half-melted cotton candy, deep as his ankles. It squished beneath his boots, and tore, and stuck to his suit fabric. He stepped to the edge of an empty picture window frame and looked out.

Thirty stories of windows and

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empty frames dropped away beneath his toes. He saw far higher buildings around him. There to the right, a masonry behemoth had fallen, taking other buildings and pieces of buildings with it. Beyond that gap, beyond the mist and rain, he thought he could trace a grey-on-grey outline: a cube, impossibly large, whose walls had a slight outward curve.

Afraid of falling, he lay on his back to look up. He found another sixty or seventy stories of building above him.

"Did the State ever have any kind of instant transportation? Like a telephone booth, but you dial and you're there?"

"No."

"Well, these people did. I should have guessed. Me, of all people! That house wasn't a house, it was only part of a house. I've found the office. It's in the city. There ought to be a bathroom and a living room and maybe a game room, God knows where. What we broke into was the bedroom."

"It's likely that the machinery has not been tended for a long time. Bear that in mind."

There were two panels in the instant-elsewhere booth: a four-button set like the one in the bedroom, and an eight-button set with squiggles printed on the buttons. Now, what did that mean? He settled for pushing the third down on the four-button set.

Now there was a light working in the cubicle, and no second panel. Corbell stepped out, and smiled. Definitely, this was the bathroom.

And the outside temperature register, set a chin level beneath the edge of his faceplate, was dropping.

"I think there's air conditioning," he said.

"You have traveled three point one miles west by southwest and have lost six hundred feet of altitude."

"Yeah." Corbell opened his faceplate. Just for a moment, he'd slam it fast if—But the air was cool and fresh.

He began taking off his suit.

It came to him as he let the heavy backpack section fall: he was exhausted. He pulled himself out of the rest of his armor and stepped down into a bathtub almost big enough to be called a pool.

He couldn't read the markings on the water spigot. He turned it all the way one way and pulled it on. Hot water splashed into the tub. He turned it the other way. Boiling water spurted out, spitting steam.

Okay, the hot water was "Cold", and it wasn't too hot to stand. It flooded out and around him as he lolled on the curved bottom.

A tiny voice called, "Corbell, answer!"

He reached and pulled the helmet to the edge. "I'm taking a rest break. Check back in an hour. And send me a dancing girl."

IV

A tiny voice peeped, "—Can. Repeating. Corbell, answer if you can. Repeating. Corbell—"

Corbell opened his eyes.

Every texture was strange to his sight and his touch. He was nowhere aboard *Don Juan*. Then where—?

Ah. He'd found two projections

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at the edge of the sunken tub, soft mounds like a pair of falsies, just right to rest his head. His neck was still between the pillows. Lukewarm water enveloped him. He'd gone to sleep in the tub.

"—if you can. Repeat—"

Corbell pulled the pressure suit helmet to him. "Here."

"Your hour's gone, and another hour and six minutes. Are you sick?"

"No, just sleepy. Hang on." He pulled the spigot on. Hot water spurted through cool water and mixed. Corbell stirred with his foot. "I'm still on a rest break. Anything new at your end?"

"Something's watching me. I sense radar and gravity radiation."

"*Gravity?*"

"Gravity waves going through my mass sensor, yes. I'm being probed by advanced instruments which must have learned a great deal about me. They could be automatic."

"They could also be from the same source as the messages. Where is all this action coming from?"

"From what would be Tasmania, if this were Earth. —The probing has stopped. I can't see the source."

"If it starts throwing missiles at you you'll have to pull out fast."

"Yes. I'll have to change my orbit. I didn't want to use the fuel. My orbit does not take me over Antarctica."

"Do that." Corbell stood up (his legs ached) and waded dripping from the warm water. A line of thick dust against the base of a wall might have been the remains of towels. He stopped before a picture window.

The day had darkened. He looked down across a shallow slope of beach sand, downhill into haze that thickened to opaque mist. Was that a . . . fish skeleton down there, glimmering white through haze? It looked far distant . . . and big.

Lightning flared, waited, flared again.

The rain fell like an avalanche.

Corbell turned away. He put on his undersuit, then his pressure suit piece by piece, feeling the weight and the chafe spots. The bath had been good. He'd have to come back here when he got the chance. There was even a sauna, not that he'd need—

Yeah, a sauna. This place was *old*. If it had been built after the Earth had grown hot, the sauna would have been a door to the outside!

He went into the booth, dithered, and decided not to push the bottom button. Peerssa was right. The machinery had been untended for a long time.

So: Bedroom or Office? He *knew* those circuits still worked.

Bedroom.

He stepped out. Next to his chin the temperature readout rose in blinking numerals. He stepped around to the headboard, confirmed a memory: he'd seen a television screen, and controls.

He turned it on. The screen lit, first grey-white, then—

It was a view of the ruined bed, showing his own armored legs.

He tried switches until he found the playback. The scene ran backward. Suddenly the bed was whole

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and four figures writhed on it at flickering speed. The scene jumped to a different foursome or to the same foursome dressed differently, before he found a way to freeze it.

"Corbell, I have tried to signal the source of the probes, to no effect."

"Okay. Listen, if you have to run, just do it. We'll both be safer if you don't stop to call me about it."

"What will you do now?"

"I'm watching home movies." Corbell chortled. "This place is like the Playboy Mansion. There's an invisible video camera focused on the bed."

"A degenerate civilization, then. Small wonder they could not save themselves. You should not degrade yourself by watching."

Corbell swallowed his annoyance. "I want to know if they're human."

"Are they?"

"The tape's faded. And they're wearing clothes, loose suits with lots of openings in them, in pastels. If they aren't human I can't see the differences . . . but they're thin. And they don't seem to carry themselves right." He paused to watch. "And they're very limber. The situation isn't quite what I thought."

"In what way?"

"I thought it was an orgy for four. It isn't. It's like in ancient China: two of them are servants. They're helping the other pair get into those advanced sexual positions. Maybe they're not servants; maybe they're trainers, or teachers." He watched some more. "Or even . . . they're as limber as dancers. Maybe that's what they are. I wish I had a view of the couch. There might be spectators."

"Corbell."

"Yeah?"

"Are you hungry?"

". . . Yeah. I may have to use that fourth button."

"I wouldn't bother. If a thousand-year-old kitchen is your only food source, you'll die quickly. Your suit will only recycle air for another seventy-one hours. Your food-syrup reserve is trivial. I suggest you try to reach the South Pole. I am over it now. I see a large continental mass, and forest."

"Well, *fine*." Corbell switched off the stag movie and made for the closet.

When he punched the second button down, a panel of eight buttons appeared beside the smaller panel.

He studied it. The symbols on those eight buttons might be letters or numbers. He reached, then drew back. "I'm afraid of it."

"Of what?"

"Of this panel in the office. See, the four buttons that were in all the booths are probably an intercom. A closed circuit; you couldn't get into it except from here. There's probably a private number that lets you into the office. This panel in the office booth is like a telephone, I think. What happens when you dial a phone number at random?"

"In my time there was a recorded voice to tell you you had made a mistake."

"Yeah, we had that too. But in this instant transportation setup you might be sent nowhere! *Poof*!"

"Can you find a telephone directory?"

There was nothing like that in the

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booth. Corbell opened the door.

Rain and howling wind were blowing into the office. Fat drops plated themselves across his faceplate. He walked around the desk, waited a minute for the water to run off the glass, then began pulling at desk drawers. They didn't want to open. He pried one open and found it half full of gray-green mold. An abandoned apple?

Machines were set into the desk top. Telephone, picture-phone, computer link, what? No telling now. Time and rain had destroyed them.

"I'll have to try pushing buttons at random," he told Peerssa.

"Good luck."

"Why did you say that?"

"To be polite."

Corbell faced the array of eight buttons in the light from his helmet. The booth could kill him so fast he'd never know it. Punch at random? He could do better than that. He chose a button—the fifth, counting across and down, and the symbol looked like an upside-down L. A gallows. He pushed it once, pause, twice, pause, thrice . . .

Four did it. Suddenly there was indirect lighting around the rim of the ceiling.

The door wouldn't open.

Annoyed, he chose another button, an hourglass on its side and compressed from both ends: 4-4-4-4.

"You have changed position twice," Peerssa informed him.

This time the door opened.

There were skeletons, very old skeletons in identical . . . uniforms? Loose garments, short pants, sleeveless shirts with rolls of fabric at the

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shoulders. Under the dust the garments looked new, in bright scarlet with black markings. The bones inside were crumbled with age, but they could not have been big men. Five feet tall or thereabouts. Corbell moved among them looking for bullet wounds. No holes in the garments or the skulls . . . but from the way they sprawled they seemed to have died in a firefight, and they seemed to be human.

He found desks and what looked like computer terminals. A thick sliding door had been melted out of the wall. Beyond it were cells, whose walls and doors were composed of lacy, decorative gridwork that was different for each cell; but the metal-lace doors were locked, and there were more skeletons in the cells.

"Police station," he told Peerssa. "I was trying for a restaurant. I pushed the same button four times." He heard irritation in his voice. Was he getting tired? "See, what I *didn't* want was a number that went nowhere. The numbers the restaurants fight for are the ones that are easiest to remember. Or they used to be."

"The State restricts those numbers to important municipal functions: police stations, hospitals, ombudsmen—"

Corbell stepped through another, larger melted door. Doors beyond retracted before him, and he stepped into a waterfall of rain. He'd finally made it outside. He couldn't see much. A city street . . . and more skeletons. These wore varied clothing, skimpy shorts-and-undershirt garments in every color and pattern save scarlet.

"I'll have to try the other repeating numbers," he said without moving.

"I think it is safe. If you find a number not in use, it won't work."

"You're willing to risk that, huh?" He still hadn't moved. The rain ran down his faceplate and drummed on his helmet.

"There is an alternative. I have probed the city with my senses. There is hollow space, a system of tunnels underground, leading away in many directions. I can lead you to the underground space where they converge."

"What's the point of . . . You think it's a subway system? They'd have stopped using it when they invented the booths."

"If they no longer used the subway cars, they may have kept the buildings as a transportation nexus. Economy."

V

He walked through pelting rain on packed dirt covered by thin mud. It sucked at his boots. He couldn't afford the energy that cost him. He was already too tired . . .

The streets and buildings were largely intact. He found no more piles of skeletons.

There was a bubble, half glass and half metal, like a Christmas ornament twelve feet across. It was smashed against the side of a building and half filled with rainwater. Corbell looked inside. He found spongy upholstery, and a pair of seats, one occupied by another small disintegrating skeleton in a yellow shorts-and-undershirt garment. Corbell forced himself to search through the big patch pock-

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ets. What he found, he stowed in his tool pouch. He could examine it later.

Later there was an intact bubble, abandoned. He tried to start it. It looked intact; the brightwork in the interior gleamed. But it was dead.

He walked on. Now there was a tremendous empty lot on one side, with wind-weathered stumps of tree and traces of curving paths. A park? On his other side was a wall that went up and up, curving away from view, and on and on, curving laterally as well, so that he had no idea how high it was nor how wide.

In the mists beyond the office picture window he had thought to trace the outlines of a cube bigger than belief. So: it had been real.

Streets. Why streets? And cars? Corbell began to suspect what he would find at the transportation nexus.

"You are over the hollow space," said Peerssa.

"That's good. I'm tired." Corbell looked around him. Mummified park to the left, wall to the right. Ahead . . . the wall turned to glass.

An entire wall of glass doors. He pushed through into gloom lit by his helmet lamp.

The ceiling gave no sense of distance: only of random colors that changed with his position. The place was wide. His beam got lost in it. He glanced down at another, confusing light: the glow of dials at his chin.

The temperature was down to 20° C.

"Air conditioned," he said.

"Good. Your suit batteries will last longer."

"There could be anything in this place," he argued with himself. He opened his faceplate. No heat. Sniffed: a touch of staleness, that was all. "I've got to get out of this suit. I'm tired."

"Drink from the syrup nipple."

He laughed; he'd forgotten it was there. He sucked until his belly felt less empty. Peerssa was right: half of his tiredness had been hunger.

He pulled himself out of the rest of the suit.

Stepping into the rug was a sudden, thrilling shock. It might be the same as the rotted rug in the office, but it was dry, intact, and ankle deep. Like walking on a cloud. It felt damned expensive, but there must have been an acre of it here in the foyer of a public building.

"Going to sleep," he told the helmet. He sprawled out in the cloud of carpet and let it close around him.

VI

Grey dawn. He wriggled a little in the luxury of the rug. The ceiling was thousands of shades of color in what seemed to be whorl patterns; you could go crazy staring into it and never know how far away it was. He closed his eyes and dozed again.

Came down to die, he thought. He said, "Peerssa, how do you expect me to die? Heart Attack?"

No answer. The helmet was out there by his fingertips. He pulled it close and repeated the question.

"I think not," said Peerssa.

"Why? The State's wonderful medicines?'

"Yes, if one includes contraceptive techniques as medicines. After

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the founding of the State, there was a generation in which no man or woman subject to inherited diseases might have children. The population fell by half. Famine ended—''

''Heart patients included?'' His father had died of heart trouble!

''Certainly the children of heart patients were not allowed to have children. Your genes are those of a criminal, but a healthy one.'' So they'd edited Corbell's genes from the human race.

''Sarcastic damn computer.'' Corbell was looking around him now. ''Nuts. I could have slept on a couch.''

There were rings of couches around freely curved tables that still floated. The couches looked like humps in the rug.

Inset within one wall was a row of booths. Corbell stood up, stretched, and went to examine them. The rug-stuff flowed delightfully around his toes.

In each booth were four rows of pushbuttons marked with squiggles, below a frosted glass rectangle. He pushed a button larger than the others (OPERATOR?), and got no response. Then he noticed the slot.

From the tool pouch of his empty pressure suit he spilled items stolen from a smashed car. A seamless silver lipstick meant nothing to him. Handkerchief: faint colors seemed to swirl in the material. Candy wrapper; the hard candy must have melted in untold years of rain; or it could have been drugs or medicine; or he could be wrong on every point. Hand-sized lens of clear plastic, its rim ornamented in green squiggles set within the plastic.

That looked about right.

He tried it in one of the booths. It fit the slot. He pushed the larger button and the screen lit.

Now what? The screens might be the phone books he needed. All he had to do was punch for INFORMATION—without reaching a nonexistent number—and read the answer, in squiggles.

Corbell was sweating. He hadn't thought this out. He lowered his hands and stepped out of the booth.

Well. No hurry. His two-days-plus of air reserve were not being used. There was time to explore.

And there, far at the back of the lobby, were the stairs he'd expected. Broad, well designed by the principles he'd learned in his first life, carpeted in the cloud-rug: a flight of stairs going down into darkness.

He went back to tuck his helmet in the crook of his elbow. He retrieved the lens-shaped key/credit card. He started down the stairs, playing the helmet lamp ahead of him, humming.

With her head . . . tooked . . . underneath her arm, she wa-a-alks the Bloody Tower . . .

The stairs lurched into motion, throwing him backward. He sat up cursing. He hadn't hurt himself, but . . . get crippled here and it would be his death.

Light grew below him.

At first he thought it was the last gasp of an emergency power system. It brightened. When he reached bottom it was as strong as daylight. There was vast open space, a high ceiling, places he thought were shops: the feel of a European train station, but with touches of sybaritic luxury more

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appropriate to a palace. There were fountains, and more of the ankle-enveloping rug swelling to rings of couches. Along one entire wall—"Peerssa! I've found a map!"

"Please describe it."

"It's two polar projections. Damn, I wish I could show you. I think the continents are smaller, which would mean there wasn't as much ocean water evaporated when they were made. There are lines across it, all from—" he checked—"From this point, I think. Most of the lines are dark. Peerssa, the only lines still lit run to Antarctica and the tip of Argentina and, uh, Alaska." Alaska had been twisted north. So had the tip of Siberia. "The lines run through oceans, or under them. Hey, you were right about California. There are two islands just under Alaska."

He saw that what he'd taken for shops were alcoves with couches and food-dispensing walls. He tried one. When he inserted the plastic disc, a woman's voice spoke in tones of regret. He tried other slots and got the same reedy voice saying the same incomprehensible words.

Next step? Down there at ~~the far end, that line of doors . . .~~

Thick doors, with slots for credit discs.

He went back for his pressure suit. The stairs carried him up. How the heck did they handle streams of commuters going both ways? He rode back down with the heavy suit draped over his shoulder.

The amp: there were lighted squiggles next to the lighted lines. He memorized the pattern that marked the route he wanted: not to the center of the thawed Antarctic continent, but to the nearer shore. Shores get colonized first.

The doors: *there*, those were the squiggles he wanted. Were they? He checked. Yes.

He produced his disc, hesitated, looked at it. Which side was up? He tried it; it wouldn't go. He turned it over and inserted it.

The door opened. He retrieved the disc, glanced at it and smiled. The squiggles had changed. He'd been docked the price of a ticket.

He faced a wall with a circular hole in it, the hole filled with glass: a glass door in a glass circle, and beyond it a cylinder lined with seats. The front of the car was glass too, with shiny metal beyond.

There was a disc-sized slot in the door. He used it. The door opened. He pulled the disc out of the other side. The door closed.

"Here I am," he said.

"Where?"

"In one of the subway cars. I don't know what to do next. Wait?"

"You will not use the instant transportation booths?"

"No, that was a dead end. Those must have been toys for the rich, ~~too expensive for most people, too~~ short-range to be practical. Something like that. Why else would there be streets with cars on them?"

"I wondered," said Peerssa. "Four digits in base eight gives only four thousand and ninety-six booth numbers. Too few."

"Yeah." There was room for about eight people, he decided, on benches of cloud-rug tinted in pastels to mark off four seats on each bench. There was a food dispenser—which spoke to him regretfully when he tried it. Behind a

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half-door that would barely hide one's torso, he found a toilet equipped with one of the glitteringly clean metal sponges. He tried that too.

His best guess was that the sponge had an instant-transportation unit in it. It cleaned itself miraculously.

There were arms for the couch. They would pull out of a slot along the back, and lock.

Through the front wall he could see a massive-looking door.

"There is increased power usage from your locus," said Peerssa.

"Then *something*'s happening." He stretched out on the couch. No telling about departure time. He'd wait twenty-four hours before he gave up. His stomach growled.

THE NORN

I

Somebody spoke to him.

Corbell jerked violently and woke with a scream on his lips. *Who but Peerssa could speak to him here?*

But he was not aboard *Don Juan*.

The voice stopped.

Peerssa spoke from his helmet. "I do not recognize the language."

"Did you expect to? Play it again for me." He listened to Peerssa's recording of a boyish voice speaking in reassuring liquid tones. Afterward he sighed. "If that guy was waiting to meet me himself, what could I tell him? What could he tell me? I'll probably be dead before I could learn his language."

"Your story has wrung my heart. Most of your contemporaries only had one life to live."

". . . Yeah."

"Your self-centered viewpoint has always bothered me, Corbell. If you could see yourself as—"

"No, wait a minute. You're right. You're dead right. I've had more than most men are given. More than most men can steal, for that matter. I'm going to stop bitching."

"You amaze me. Will you now dedicate your services to the State?"

"What State? The State's dead. My self-centeredness is as human as your fanaticism."

The stranger's voice spoke again, in beautiful incomprehensible words—and Corbell saw him. His face was outside the glass, beyond the forward door, as if the heavy metal were transparent. A hologram? Corbell leaned forward.

It was the bust of a boy, fading below the shoulders. He was twelve or so, Corbell guessed, but he had the poise of an adult. His skin was golden, his features were a blend of races: black, yellow, white, and something else, a mutation perhaps, that left him half bald: a fringe of tightly curled black hair around the base of the skull and over the ears, and an isolated tuft above the forehead.

The face smiled reassuringly and vanished. The metal door went up. The car shot forward and down.

Corbell was on a rollercoaster. He pulled out one of the retracted chair arms and hung on. He fell at a slant for what felt like half a minute. Then there was high gravity as car and tunnel curved back to horizontal.

Light inside, darkness outside. Corbell was beginning to relax when the car rolled, surged to the

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left, rolled, surged to the right; steadied. What was that? Changing tunnels?

There were no more surges.

The hissing sound of their motion was sleep-inducing. He was tempted to lie down.

His ears popped.

Better to lie down with his feet forward. There would be deceleration at the end.

His ears felt pressure again. He worked his jaw to pop his ears.

Peerssa said, "Your speed is in excess of eleven hundred kilometers per hour. You are now beneath the Pacific Ocean. A remarkable achievement."

"How do they do it?"

"At a guess, you are riding a gravity-assisted linear accelerator through an evacuated tunnel."

Corbell worked his jaw to relieve pressure in his ears. Evacuated? He poked his head into his helmet.

Air pressure was down and still dropping.

He panted as he worked his way into the pressure suit. "Vacuum tunnel, right," he gasped. "The car leaks." He wondered what else had deteriorated in this ancient system of tunnels. He could be stopped beneath the Pacific, to suffocate slowly, while an almost human ghost reassured him that service would be resumed as soon as possible.

Too much imagination and I'll scare myself to death. Too little and I'll get myself killed.

Now the ride was superlatively smooth. Presently Corbell emptied his bladder; then emptied his suit's bladder into the toilet. The urine ran through the bowl without leaving a trace. A frictionless surface.

Hours passed. He dozed sitting up, woke, lay down on his face, didn't like that, lay down on his back with the backpack a bulge under his shoulders and a chair arm under his head. Better. He slept.

A surge woke him. He sat up. He sucked syrup . . . sucked the last of it, and it was almost enough. There was acceleration; was he going uphill? Half a minute of low gravity, a final surge backward. A steel door closed behind the car and he knew he was at rest.

The glass door in front of the car, and the metal door beyond it, both popped open at the same time. Corbell was just standing up when the thunderclap slapped him backward.

Sometimes you would end a long backpacking trip with aches in every muscle and a mind blank except for the determination to keep walking no matter what. In much the same frame of mind, Corbell got to his feet and limped toward the doors. His ears rang. His head hurt where he'd bumped it on his helmet. He'd twisted his back. He felt stupid: the thunderclap of air slamming into vacuum should not have surprised him.

All he could do was keep wading through the surprises until they stopped him.

There were dim lights far back in a great open space. He picked out couches and alcoves and the faintly glowing lines of a wall map. Numbers at his chin showed normal pressure or a bit higher, temperature warm but bearable. Corbell opened his faceplate.

The air was warm and musty. He smelled dry rot. He lifted his hel-

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met, sniffed again. A trace of animal smell—

"Meep?"

He jumped, then relaxed. Where had he heard such a sound? It was friendly and familiar. Motion caught at his eye, left—

"Mee!" The beast came questing through dusty cloud-rug.

It was a snake, a fat furry snake. It came toward him in an S-shaped flow. Its fur was patterned in black and grey and white. It stopped and lifted its beautiful cat's face and asked again, like a cat: "Meep?"

"I'll be damned," said Corbell.

Something rustled behind him.

He forgot the furred snake. He was tired, so tired that in a moment he knew he would pass out. But there were furtive sounds behind him, and he turned, fighting to stay on his feet.

Under a hooded robe of white cloth with a touch of irridescence in it: a bent human form . . .

While the cat-snake distracted him, she had struck. He saw her in shadow: tall and stooped, gaunt, her face all wrinkles, her nose hooked, her eyes deep-set and malevolent in the shadow of the hood. Her swollen hands held a silver cane aimed at Corbell's eyes.

He saw her for a bare moment while the numbness closed over him. He guessed he was seeing his death.

II

He was on his back on a form-fitting surface, his legs apart, his arms above his head. The air was wet and heavy and hot. Sweat ran in his crotch and armpits and at the corners of his eyes. When he tried to move the surface surged and rippled, and soft bonds tightened round his wrists and ankles.

His pressure suit was gone. He wore only his one-piece undersuit, on a world uninhabitably hot. He felt naked, and trapped.

Light pressed on his eyelids. He opened them.

He was on a water bed, looking at grey sky through the jagged edges of a broken roof. He turned his head and saw more of a Bedroom: curved headboard covered with elaborate controls, arc of couch with floating coffee-table to match.

These Bedrooms must have been mass-produced, like prefab houses you didn't need to assemble. But a tornado had hit this one. The roof and the picture windows had exploded outward.

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The old woman was watching him from the arc of sofa.

He thought: Norn. Fate in the shape of an old woman. She was vivid in his memory, and so was the silver cane in her hand. He watched her stand and come toward him . . . and the fur boa round her shoulders raised a prick-eared head and watched him back. It was curled one and a half times around her neck. The tip of its tail twitched.

Dammit, that was a *cat*. He remembered a cat like that, *Lion*, though he'd forgotten the boyhood friend who owned it. Lots of luxurious fur, and a long, rich, fluffy tail. If Lion's tail had been multiplied by three and attached to Lion's head, this beast would have been the result.

But how could evolution cost a cat its legs?

He didn't believe it. Easier to believe that someone had tampered with a cat's genes, sometime in these last three million years.

The woman stood over him now, her cane pointed between his eyes. She spoke.

He shook his head. The bed rippled.

Her hand tightened on the cane. He saw no trigger, but she must have pulled a trigger, because Corbell went into agony. It wasn't physical, this agony. It was sorrow and helpless rage and guilt. He wanted to die. "Stop!" he cried. "Stop!"

Communication had begun.

* * *

Her name was Mirelly-Lyra Zeelashisthar.

She must have had a computer somewhere. The box she set on the headboard was too small to be more than an extension of it. As Corbell talked—meaninglessly at first, talking merely to stop her from using the cane—the box functioned as a translator. It spoke to Corbell in Corbell's own voice, to Mirelly-Lyra in hers.

They traded nouns. Mirelly-Lyra pointed at things and named them, Corbell gave them his own names. He had no names for many of the things in the room. "Cat-tail," he called the furred snake. "Phone booth," he called the instant-elsewhere booth.

She set up a screen: a television that unrolled like a poster. Another computer link, he guessed. She showed him pictures. Their vocabulary increased.

"Give me food," he said when his hunger had grown more than his fear. When she understood, finally, she set a plate beside him and freed one of his hands. Under her watchful eye and the threat of her cane, he ate, and belched, and communicated, "More."

She took the plate behind the headboard. A minute or so later she brought it back reloaded, with fruit and a slice of roasted meat, hot and freshly cut, and a steamed yellow root that tasted like a cross between squash and carrot. On the first plateful he had hardly noticed what he was eating. Now he found time to wonder: where did she cook it? and to guess that she used the "phone booth" to reach her stove.

The cat-tail dropped from the old

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woman's shoulders onto the bed. Corbell froze. It wriggled across the bed and sniffed at the meat. Mirelly-Lyra thumped it on the chest and it desisted. Now it crawled up onto Corbell's chest, reared and looked him in the eyes.

Corbell scractched it behind the ears. Its eyes half closed and it purred loudly. Its belly was hard leather, ridged like a snake's, but its fur felt as luxurious as it looked.

He finished the second plate, feeding some of the meat to the cat-tail. He dozed off wondering if she would shake him awake.

She didn't. When he woke the sky was black and she had turned on the lights. His free hand was bound again.

His pressure suit was nowhere in sight. Even if she freed him she would still have the cane. He didn't know if the "phone booth" worked. At the back of his mind he wondered if Peerssa, thinking him dead, had gone on to another star.

What did she want with him?

They worked on verbs, then on descriptive terms. Her language was of no form he had ever heard of, but the screen and mechanical memory made it easy for them. Soon they were trading information:

"Take off the ropes. Let me walk."

"No."

"Why?"

"I am old."

"So am I," said Corbell.

"I want to be young."

He couldn't read expression in her voice or in the translator's version of his own. But the way she'd said that jerked his head up to look at her. "So do I."

She shot him with the cane.

Guilt, fear, remorse, death-wish. He cried and writhed and pulled at his bonds for eternal seconds before she turned it off.

Then he lay staring at her in shock and hurt. Her face worked, demonically. Abruptly she turned her back on him.

His thrashings had frightened the cat-tail. It had fled.

"I want to be young—" and *Blam!* And now her back was rigid and her fists clenched. Did she hide red rage, or tears? Why? *Is it my fault she's old?* One thing was clear: she was keeping him tied up for her protection and his own. If she used the cane on him when his hands were free, he might kill himself.

The cat-tail crawled back onto his chest, coiled, and reached to rub noses with him. "Meee!" It demanded an explanation.

"I don't know," he told the beast now rumbling like a motor on his chest. "I don't guess I'll like the answer."

But he was wrong.

* * *

She freed one of his hands and fed him. It was more of the same: two fruits, a steamed root, roasted meat. She fed the cat-tail while she was at it.

The fruit was fresh. The meat was like overdone roast beef sliced moments ago. She had been out of sight behind the headboard for no more than a minute. Even a microwave oven wasn't *that* fast, or hadn't been in 1970. It stuck in his mind . . .

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And he had to go to the bathroom.

She was irritatingly, embarrassingly slow to understand. He knew she had the idea when she began to pace, scowling, dithering as to whether to leave him in his own filth. Eventually she freed him, first (from behind the headboard) his wrists, then his feet. She stood well back, covering him with the cane, while he went into the middle closet.

Alone at last, with the door blocking her eyes, he let out a shuddering sigh.

He wouldn't try to escape. Not this time. He knew too little. It wasn't worth the risk that she wouldn't let him go to the bathroom again. It wasn't worth the risk of the cane.

The cane: it had reduced him to a groveling slave, instantly, twice. He had never even considered keeping his dignity. In that, the cane lost half its power. He could feel no shame. Still, he knew that too many applications of the cane would leave him nothing like a man.

He was a shell of a man reanimated by electrical currents and injections of memory RNA. He had been changed again and again, but whatever he was, he was still a man. What the cane might do to him was cruder, more damaging.

He would cooperate.

But: she was mad. Even if sane by the standards of her time—unlikely—by Corbell's she was mad, and dangerous. Old and feeble as he was, he would have to escape before she killed him.

The "phone booth" must be working; he'd seen no microwave over here in the bedroom. *Good.*

Calling Peerssa would have to wait. He dared not ask after his pressure suit; it might show that he was thinking dangerous thoughts. And even if Peerssa were still in the solar system, how could he help?

Corbell left the booth and returned to his spread-eagled position on the bed. She moored his hands from behind the headboard, then his ankles. They resumed their conversation.

The translator skipped words. He missed some of it before he realised what he was hearing. Then he asked questions, got her to back up for the blank spots. He heard it in bits and pieces:

She was Mirelly-Lyra Zeelashisthar, a citizen of the State. (*The* State? He wondered about that. But she described it in much the way Peerssa had, except that her State had been the government of all known worlds for fifty thousand years . . . Corbell's years, for the Earth had not yet been moved.)

In her youth she had been supernaturally beautiful. (Corbell tactfully did not question this.) Men went incomprehensibly mad over her. She never understood the force that drove men to such irrationality; but she used her sex and her beauty as she used her mind: for advancement. She was born hyperactive and ambitious. By the age of twenty she was high in the ranks of Intrasystem Traffic Control.

Because she was now in a position of responsibility, the State conditioned her. Afterward her ambition was not for herself alone, but for the good of the State. It was routine—and, Corbell gathered from

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later data, it didn't quite take.

If she advanced the State's ambitions by guiding the courses of spacecraft within the solar system, certainly she advanced herself. And she came to the attention of a powerful man in a collateral branch. SubDictator Corybessil Jakunk (Corbell heard his name often enough to memorize it) was not her direct superior, but he could do her some good.

So powerful a man was allowed some leeway for his personal desires, that he might serve the State more readily. (The old woman saw nothing wrong in this. She was impatient when Corbell did not understand at once. It may have formed a spur to her own ambition.) His personal desire was Mirelly-Lyra Zeelashisthar.

"He told me that I must be his mistress," she said. "I wished more stature for myself than that. I refused. He told me that if I would share his life for a four-day period, he would gain for me a position in full charge of the Bureau. I was only thirty-six years old. It was a fine chance."

She played him as she had played other men. It was a mistake.

Corbell had wondered why he was being made captive audience for an unsolicited soap opera. He began to find out. Three million years later, at what looked to be eighty or ninety years old, she was still wondering what had gone wrong. "The first night I used a chemical to help. To make one want sex—"

"An aphrodesiac?"

It went into the computer memory. "I needed it. The second night he would not let me use chemicals. He used none himself. I had a bad time, but I did not complain. The third night was the same as the second. On the fourth day he begged me to change my mind, give up my position, become his woman. I held him to his promise."

For seven months she was Head of the Bureau of Intrasystem Traffic Control. She was then informed that she had volunteered for a special mission, a glorious opportunity to serve the State.

It was known that there was a hypermass, a black hole, at the center of the galaxy. Mirelly-Lyra was to investigate it. After some preliminary use of automated probes, she was to determine by experiment whether (as theory predicted) such a black hole could be used for time travel. If possible, she was to return to her starting date.

"Why did he do it?" she wondered. "I saw him once before I left. He said that he could not bear to have me in the same universe if I was not his. But this was not what he offered at all!"

"He may have thought," said Corbell, "that four days of ecstasy would do it. You'd throw yourself into his arms and beg not to be sent away."

For a moment he feared she would use the cane. Then she broke into dry cackling laughter. He saw something likeable reflected there, before her face drooped in brooding hate. Now she looked like death itself, the Norn. "He sent me to the black hole. I saw the end of everything."

"So did I."

She didn't believe him. At her

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urging he described it as best he could: the colors, the progressive flattening of core suns into an accretion disc, the swelling of the Ring of Fire, the final drastically flattened plane of neutronium flecked with smaller black holes. "I only went in as far as the ergosphere," he said, "and that was only to get me home *fast*. Did you really go through the singularity?"

She was long in answering. "No. I was afraid. When the time came I did not think I owed the State that much." Her conditioning had worn off to that extent, at least. She had circled the black hole, using its mass to bend her course back on itself, and headed for home. She was eighty years old, still healthy and still beautiful (she said) due to the rejuvenation medicines in her ship's dispensary, when she reached Firsthope.

He checked the times with her. Did her Bussard ramjet accelerate at one gravity all the way? Yes. Twenty-one years each way. Her ship was far superior to Corbell's *Don Juan* . . . and looked it. It was a toroid, bigger than *Don Juan,* and with a cleaner design.

Firsthope was a colony just being established around another star when Mirelly-Lyra left Sol. She hoped that Firsthope would not have records of her defection.

Firsthope fired on her. What she at first thought was a message-laser carried no modulation at all: it was an X-ray laser, designed to kill.

She tried again. The next system resembled Firsthope: it held a world of Earth's mass and Earth's approximate temperature range, whose reducing atmoshpere had been seeded when the State was still young. Perhaps it had been colonized in the seventy thousand years she had been gone . . . and it had been. She was fired on, and she fled.

"I was bitter, Corbell. I thought it was because of me, because of what I had done. All the worlds would have my record. There was no hope for me. I went to Sol system to die there."

She had already recognized stars in Sol's projected vicinity. At Sol she was not fired on. But the sun was expanding toward red giant status, and Earth was missing. Bewildered, she investigated further.

She recognized Saturn, and Mercury (heavily scarred by mining, just as she had left it), and Venus (showing the signs of an unsuccessful attempt to terraform that useless world). Uranus was in a wildly altered orbit between Saturn and Jupiter, if that was Uranus. Mars bore a tremendous scar, a fresh mare probably left by the impact of Deimos. "The State was going to move Deimos," she told Corbell. "It was too close. Something must have happened."

She found Earth orbiting just inside the orbit of Mars.

Corbell asked, "Any idea how they did that?"

"No. Diemos was to be moved by fusion bombs successively exploded in one crater. Moving an inhabited planet could not be done that way."

"Or *who* did it?"

"I never learned. I landed my ship and was arrested at once, on my record, by children."

"*Children*?"

"Yes. I was in a bad position,"

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she told Corbell, smiling wanly. "Even at the last, when I landed on Earth itself, it may be that I hoped my beauty would sway a judge. But how could I sway children?"

"But what *happened*?"

Earth was ruled by children, twenty billion children aged from eleven years to enormous. "It was young-forever that did it. The State had discovered an ideal form of young-forever," the old woman said. "Parents can see to it that their children stop growing older at an age just below, what is your word? When girls begin their cycle of blood—"

"Puberty."

"Just before puberty, they are stopped. They live nearly forever. There is no resulting rise in numbers, because children do not have children. The method was far better than older methods of staying young forever."

"Older method? Of immortality? Tell me about that one!"

Suddenly she was enraged. "I could not find out! I learned only that it was for the few, for the Dictator class alone. When I arrived it was no longer used. My lawyer knew about it. He would not discuss it."

"What happened to the solar system?" he asked.

"I was not told."

He laughed, and desisted when she raised the cane. *So the State hadn't let her play tourist either.*

She let the cane's tip fall. "They told me nothing. I was treated as one not entitled to ask questions. All that I learned I learned from my lawyer, who seemed a twelve year old boy and would not tell his true age. They learned my crime from my ship's log. They sentenced me to—" Untranslated.

"What was that?"

"They stopped time for me. There was a building where some criminals went to be stored against need." The bitter smile again: "I was to be flattered. Only unusual breakers of the law were thought to be of future need to the State. People of high intelligence or with good genes or interesting tales to tell to future historians. The building would hold perhaps ten thousand, no more. I was lucky they let me keep my medicines and my translator. At that I could only choose as much as I could carry."

She leaned close above the water bed. "Never mind this. Corbell, I want you to know that there was an earlier form of immortality. If we find it, we can both be young again."

"I'm ready," said Corbell. He pulled at the soft bindings on his wrists. "I'm on your side. I'd *love* to be young again. So why not untie me?" *It can't be this easy.*

"We may search a long time. I have already searched for a long time. I must have your youth drugs, Corbell. They may not be as good as the Dictators' immortality, but they must be better than mine."

Oh.

He had to answer. "They're aboard ship, in orbit. They can't help you anyway. You're probably older than I am, not counting the time I gained in cold sleep." He felt the discomfort from the sweat pooled under him; he felt more sweat starting. He felt his helplessness. He saw her raise the cane.

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She waited until he had stopped thrashing before she said, "I understand you. You come from a time earlier than mine. Your medicines are more primitive than mine. I cannot use them. So you say."

"It's true! Listen, I was born before men landed on the Earth's Moon! When the cancer in my belly started eating me alive I had myself frozen. There was—"

"Frozen?" She didn't believe him.

"Frozen, yes! There was the chance that medical science would find a way to heal the cancer and the damage done by broken cell walls and—" His defense ended in a howl. She held the cane on him for a long time.

He heard: "Open your eyes."

He didn't want to.

"I'll use the cane."

His eyes were clenched like fists, his face a snarl of agony.

"A frozen man is a preserved corpse. You won't lie again, will you?"

He shook his head. His eyes were still closed. Now he remembered what Peerssa had told him about phospholipids in the glea around brain nerves. They froze at 70° F, and that was the end of the nerves. He'd been committing suicide. And why not? But he'd never, never convince the Norn.

"Let me speak this right," said Mirelly-Lyra Zeelashisthar. "I won't tell you about the first time I was taken from the zero-time jail. The second time happened because the zero-time generator had used up its power. More than a thousand of us returned suddenly to life in a world that was baked and without life. The weather was hot enough to kill. It killed most of us. The rain came down like floods of bath water, but without rain we would all have died. Many of us reached this place where days are six years long and nights are six years long, but life is still possible. I was old. I didn't want to die."

Resigned, he opened his eyes. "What happened to the others?"

"The boys captured them. I don't know what happened after. I escaped."

"Boys?"

"Don't be distracted. For many years I used my time only to stay alive. Over more years I learned how to build a small zero-time, a jail just for myself. Then I altered the subway system to take any passenger from the hot places directly to me. I made warning systems to free me from zero-time when the subway system was in use.

"Do you understand why I did all of this? My only hope was the advanced medicines that must be carried by any long range explorer. One day an explorer would come back from another galaxy or from one of our satellite galaxies. He would know no better than to land in places of Earth that are too hot. He would need to come to the polar places immediately." She stood above him like a great bird of prey. "The subway system would send him to me, carrying the medicines developed in my future, that will let me grow young when my own medicines have only let me stay old. Corbell, you are that man."

"Look at me!"

She shrugged. "You may be a thousand years old, or ten thousand.

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What you must know is this. If you are what you say, you are useless to me. I will kill you."

"Why?" But he believed her.

She said, "We are the last of the State. We are the last of people. Those who remain are not people anymore. If we could grow young, we could breed and raise more people. But if you do not have the medicines, of what use are you?" He heard her try to soften her voice. His own voice said to him, "Consider. You are too old for even your advanced medicines to affect you. I am different. Give me back my health and I will search out the real immortality that the Dictator class used. You are old and frail. You will rest while I search."

"All right," he said. The old woman was a Norn, right enough. She was both life and death to him now. "My medicines are in orbit. I'll take you to my landing craft. I'll have to contact my ship's computer."

She nodded. She raised the cane, and he flinched. "If you break your word, you will take your own life, when I let you."

III

When she was safely on the other side of the headboard, Corbell let himself relax. An almost silent sigh of released tension . . . followed by a wolfish grin and an urge to whoop, savagely repressed. At last Corbell had set himself a goal.

He had come down to die on Earth. But this was better.

His hands came free. He sat up, but she gestured him back with the cane. She made him put his wrists together and bound them before she freed his ankles.

The cloth stuck to his wrists like bandages. He didn't think he could pull loose.

The bedroom's picture windows had stretched before they broke. The edges were like lines of daggers curved outward. He followed Mirelly-Lyra, stepping carefully through the daggers, into knee-high grass.

She gestured him ahead of her, toward a bubble-car like those he had found in One City. Where his feet fell big insects fled, whirring. It was even hotter outside, but at least there was a breath of breeze. The sun sat on the horizon, huge and red, casting long blurred shadows. A hard-to-see red circle on the red sky, smaller than the sun, must be Jupiter.

The car seemed to rest on the very tips of the grass blades. It did not shift as Corbell climbed in. Mirelly-Lyra gestured to him to slide over (with the cane, the cane that was anaesthetic and instrument of torture and what else? He was afraid to learn) and climbed in beside him.

She bent to the console, hesitated, then punched numbers. "We go for your pressure suit," said the translator at her belt.

The car moved smoothly away. Mirelly-Lyra half relaxed; she was not steering. Already Corbell knew that he could not return by car. He didn't know the destination number of the house.

Down the hill and into a narrow valley the car drove, accelerating. Now they were moving at hellish speed. Corbell gripped a padded bar

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on the dashboard and wished he dared close his eyes.

She was studying him. "You did not use such cars?"

"No." Inspiration made him say, "We didn't have such things on Dogpatch."

She nodded. The knot in Corbell's belly eased open. God help him if she really believed that he had left Sol system ahead of her. He had to convince her that he came from her own future.

But there must have been inventions he would know nothing about, things humanity would *not* have forgotten. Like what? A bathtub designed to fit human beings? A cold cure? A permanently sharp razor blade, or a treatment to stop the beard growing at all? A hangover cure that works?

If only I'd read more science fiction! Well, coming from another planet gives me some leeway—"I really thought I was the first man to reach the galactic core," he said. "Your trip wasn't even in the records."

"How old are you?"

"About six hundred," he said offhandedly. "Our years. In Earth years that's about—" Don't get tricky. Count on her not knowing much about the Earth she came back to. "—Five hundred and thirty. How about you?"

"Nearly two hundred. My years, not Jupiter years."

"I'm surprised you never ran out of medicines."

"The children let me take my supply with me into zero time. I keep them there so that they will not spoil."

A thrill ran up Corbell's neck. She'd keep the food there too, cooking it in large batches and then stopping time for it. That way her meals would always be freshly cooked.

And that private jail of hers must be very close to one of the "phone booth" termini.

"What was your sun?" she asked.

The only sun he could even *spell* was Sirius. "I never heard it called anything but 'the sun,' " he said. "Just how much did you learn about the real immortality, the one the Dictators used?"

"Only that. When a Dictator died it was through violence." She scowled. "Such events were remembered. My lawyer told me stories of one Dictator warring on another, of war spreading to their families. Old stories from far before this time. From the sound of it, the Dictators no longer served the State, even then. Only themselves."

"Like Greek gods," he said. He heard the gap: Mirelly-Lyra's box had not translated his remark. "Powerful and quarrelsome," he amplified. "Mortals did well to bow when the gods passed and otherwise try not to get caught in the wheels."

He glimpsed details of scenery as they flashed past. Green-and-brown hills. Groves of dwarf trees. He looked for birds, but saw none. They went over a sharp crest, and Corbell's stomach dropped away.

The car sped down toward what even Peerssa would have called a city.

It showed black outlined in red, with the red sun almost behind it. There had been a geodesic dome. A

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piece of the frame, a dozen linked hexagons, lacy-thin, still stood along one city border. But the city itself retained the dome shape. In the center of a polar coordiante grid of streets sat an enormous cube with bulging sides: the transportation nexus. Spires and glass slabs sloped away from it; the tips of the tallest buildings defined the shape of the lost dome.

A tall glass slab near the center had fallen against the great cube, where, bent in the middle, it leaned for support like a drunk against a large friend. Otherwise this city, Four City, was almost undamaged. One City had been largely ruins. Perhaps Four City was younger than One City; perhaps its dome had protected it from the elements longer.

Beyond the city's edge, the blue of ocean carried a sunglade red as blood. And this was the strangest thing about Four City: that it had not spread out along the shoreline. The pinkish-white curved line of beach was bare of buildings. No roads joined it to the city. Corbell, peering, made out regularly spaced black dots that might have been "phone booths".

He asked, "Do you know this city well?" *Play tour director. Where's your private jail, Mirelly-Lyra?*

She said, "Yes."

He dropped it. "From here we go to the west coast of—"

"I know. My machines watched your landing."

He had almost grown used to the car's reckless speed, but when they swooped into the city his composure self-destructed. The streets had teeth: big chunks of fallen masonry, jagged sheets of glass. The car swerved around them, tilted forty-five degrees and more to take corners, straightened and tilted again, while Corbell strangled the padded bar.

The Norn studied him with shrewd old eyes. "You're badly frightened. I wonder what your people used for transport."

"Phone booths," he said at random. "For long distance travel we used dirigibles, lighter-than-air craft."

"You traveled so slowly?"

Sweating, he said, "We weren't in a hurry. We lived a long time." For an instant he considered telling her the truth. Get it over with. Her deal could work for *him*. They would use her medicines to make him young. Young Corbell would search out the Dictators' immortality while frail old Mirelly-Lyra waited it out in a rocking chair. It made good sense.

But Mirelly-Lyra was crazy.

The car swerved violently, ducked under something huge and solid. Corbell looked back.

Embedded in the street like a Titan's spear was a girder of Z-shaped cross section. It was as long as the average Four City skyscraper was tall.

The car slowed and eased to a stop beneath the great rectangular face of an office building. Corbell let his death-grip relax. The old woman was prodding him with the cane, gesturing him out. He got out. She followed.

The design of windows on the face of the building was not rectangular; the panes (largely missing) were laid out like a pattern in

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stained glass. And there were curlicues above the great glass doors. Corbell, still shaking in the aftermath of terror, pulled himself together. He needed to remember these; they might be an address. Two commas crossed, an S reversed, an hourglass on its side and pushed inward from the ends, and a crooked *pi*.

Two sets of doors dropped into the floor to let them through, then slid back up.

Mirelly-Lyra took them through a lobby padded in cloud-rug, then through a corridor lined with doors without handles. "The lifting boxes don't work," she explained. They climbed stairs: three flights, with pauses to rest. They were both panting when Mirelly-Lyra turned down a hallway.

Corbell's fingers worked steadily at a button on his undersuit.

He'd been wearing it since *Don Juan* took off. He'd washed it several hundred times. He twisted and twisted at the button. One thick flexible "thread" joined it to the fabric. It would have to part all at once.

More doors without handles. Mirelly-Lyra stopped beside the sixth door. She pressed something in her hand against the center of the door. As the door swung open she put the unseen thing back in a pocket and gestured. Corbell passed through ahead of her. He dropped the button as his fingers brushed the jamb.

It was the first risk he'd taken. He had no choice. He had to be able to re-enter this place.

Mirelly-Lyra kept her eyes on Corbell as the door closed behind her. It closed on the button . . . and she didn't notice. Corbell was looking around him, everywhere but at the door.

Desk covered with widgetry; cloud-rug; "phone booth"; picture window. The Offices were mass produced too. There were minor differences. The "phone booth" door was transparent. The picture window was intact, and rain had not ruined the desk or the rug.

Corbell's pressure suit and helmet had been dumped on the desk. He picked up the helmet in his bound hands. He called, "Peerssa! This is Corbell for himself calling Peerssa for the State."

There was no answer.

"Peerssa, please answer. This is Corbell calling Peerssa and *Don Juan*."

"Nothing. Not a whisper. And Mirelly-Lyra was watching.

"My ship may be around the other side of the planet," he told her. *But Peerssa set up relays!* "Or the autopilot may still be holding an equatorial orbit." *But he wasn't!* "We can call from my landing craft."

He had to explain equatorial orbits to her by drawing in the dust on the desk. Then she understood. She said, "We must use the tunnel cars."

The "phone booth" was too small. Mirelly-Lyra clearly did not trust Corbell that close to her. She held him covered while she drew a symbol in the dust: the crooked *pi*. "Push this key four times," she said. "Then wait for me. You cannot outrun my cane."

He nodded. She watched him through the door. He paused to note

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that four of the eight symbols on the keyboard matched the four he'd seen over the entrance.

He pushed the crooked *pi* four times.

Zap, he was elsewhere. The world beyond the door snapped into another shape. Vast empty space, rings of couches humping from the floor: here was another intercontinental subway terminal. Corbell fumbled in the belt pouch of his pressure suit, found a circle shape. His hands were trembling violently. Clear plastic disc: right. With both hands he guided it into the coin slot.

He stabbed at the compressed hourglass symbol, 4-4-4-4.

Nothing at all happened. The "phone booth" in the Four City Police Station must be out of order.

Mirelly-Lyra Zeelashisthar stepped into view from another booth, looked about her, eyes narrowed and jaw thrust forward. She saw him, still in the booth with the door closed—

He jabbed frantically at the crossed commas. Remorse, terror, guilt, death-wish flashed in his brain and were gone, and so was the light. In blackness he rammed his shoulder against the door and ran blindly out into . . .

. . . corridors with pale green walls and glowing white ceilings. Wide doors with no knobs, only small plates of golden metal that might have been electromagnetic key plates. He turned right, left, right, and stopped, face to a wall, sucking air. Fatigue soaked into his legs like an acid solvent.

Would she know how to trace his "call"? He couldn't know. He ran.

A bigger door at the end of the corridor dropped open to reveal stairs. One long flight ran diagonally between a sheer wall and the tinted glass-mosaic face of the building, with doors at landings along the flight. He froze in fear. If she was out there, she'd see him!

Then he remembered. They'd passed a building with this pattern on its face. From the outside it was a mirror.

He was (he counted) three stories up. He still didn't know what kind of place this was; but it must be some kind of public service.

All right. By the time she got here, if she ran as he'd been running, the old lady would be exhausted. She'd want to go down. So did he, and she'd guess that. He went up. At the fourth story the door dropped for him, then closed as he passed it. He climbed another flight, then looked back and saw footprints in the dust.

He stopped, resting, listening.

No sound.

He walked backward down the stairs, stepping in his own footprints as best he could. When the fourth-floor door dropped, he threw his helmet through, then his pressure suit. Then he jumped for it.

He'd left a pair of sloppy footprints, but no other tracks. And now he was on cloud-carpet. He stooped to brush away two dusty footprints, picked up his suit and helmet and staggered on.

He couldn't seem to get enough air.

TO BE CONTINUED

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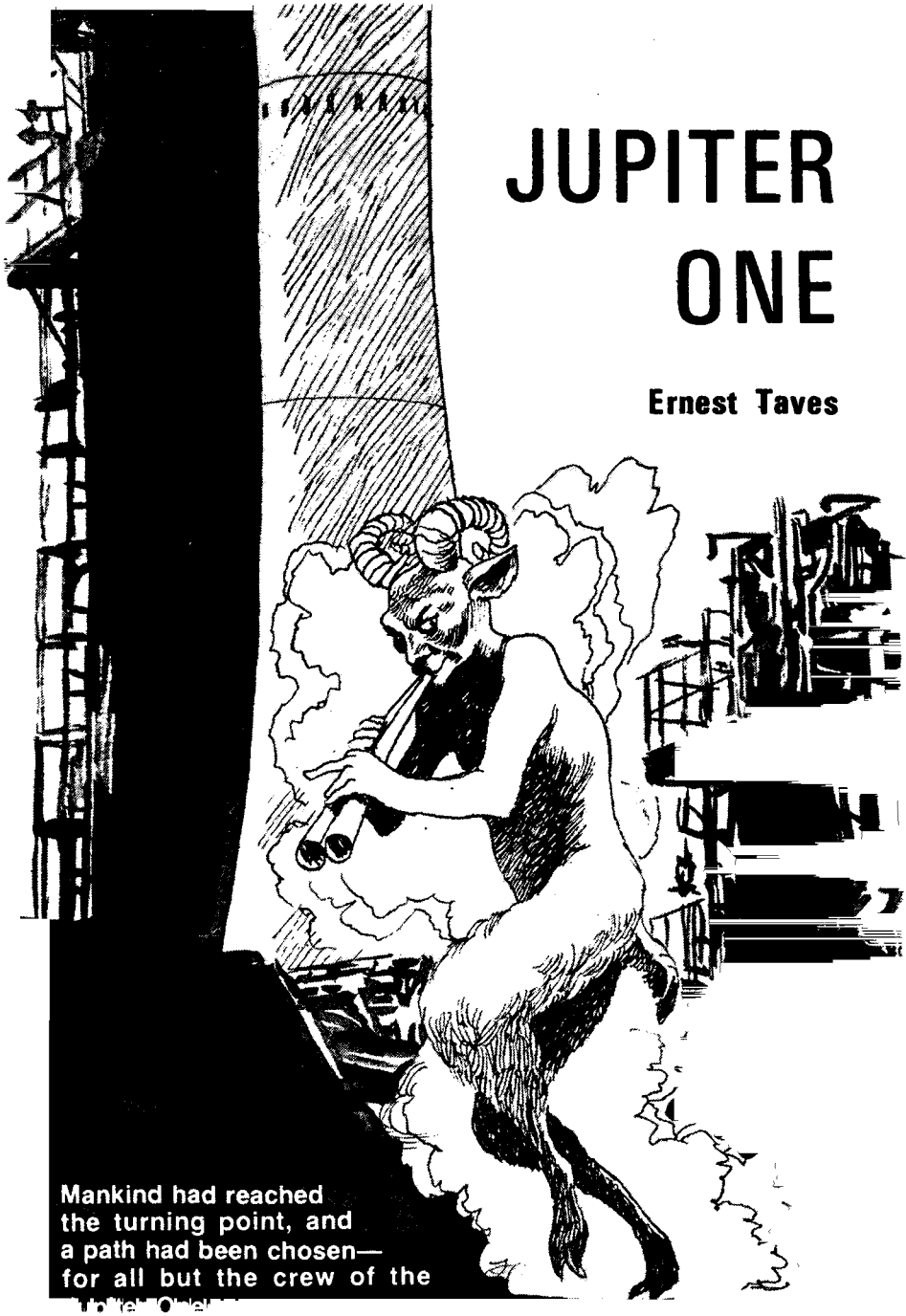
JUPITER ONE

Ernest Taves



Mankind had reached the turning point, and a path had been chosen— for all but the crew of the

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I STAND AT THE WINDOW and look out at the familiar hardware. It stands there taller than life, as if it knew which way it was pointed. There are lights all over, trails of vapor, and an almost subliminal megawatt hum of energy. There would be a kind of festivity to all this if it weren't for the crowds around the fences, and the beefed-up security forces keeping them out. *Fin de siècle* festivity, to be sure, but anyway something gay, not something stolen, something blue.

A hand to my shoulder now. In my distracted state I wonder how it is that this appendage of skin and muscle, phalanges and metacarpals, finds it possible to inform itself with such communication of total generosity. I touch that knowing hand with my lesser counterpart.

"Nat," she says. "Will we get off the ground?"

"We will unless something blows between now and oh five hundred." I look at the quartz thing on my wrist. "We ought to get some sleep."

The device on my wrist tells me what time it is, and to the nearest fraction of a second, but my real watch is in a secret pocket. It will go with me, not on a round trip to Jupiter, but one-way to a different destination. It's an old stem-wound Hamilton, passed down through the generations from my favorite ancestor. He rode the Pony Express, and after that was a telegrapher on the Denver and Rio Grande. I am on the crew of Jupiter One by right of genetic inheritance, though the NASA printout would give me a more prosaic citation.

I say we ought to get some sleep, but that is a *pro forma* declaration if I ever heard one, made one, and Nancy, dear Nancy, recognizes it as such. Besides, that's the way she wants it. But sometimes she wants to talk first. Particularly when we're about to do something new in our experience, such as leaving the earth.

Forever.

"Are we going to get away with it?"

It is a soft, warm December night, a condition under which we ought to be able to get away with anything. But the weather, barring totally unforeseen developments during the next few hours, will not be the agency that determines the fate of our enterprise.

"Once we're up and away. We do need to get off the ground first."

"You're more worried than you let on. What is it? I am a grown woman, Nat."

"Quite so. And grown in the right places, yes, just so. Here—"

But she wants to talk. She wants to know what I'm worried about, and I tell her.

"There are a lot of people on the other side of the fences, and at the roadblocks and barricades beyond, all of them trying to get onto this side. They get in, we don't go up. And that's the end of it."

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"But surely security will hold?"

"It had better, dear one. It had better."

I make another move, but that too is now becoming almost *pro forma*.

"I don't get it. I really don't. Think of Mercury, Gemini, Apollo. Nothing like this could have happened then. I really do not get it, Nat."

"Nothing like this could have happened then," I agree. "That was long ago, but the beginnings of this were there if you wanted to look for them. You know that as well as I."

"What do I know?"

All the vulnerability in the world is revealed to me in that query. Nancy knows what she knows, all right, but this generous woman is fearful, now wanting something from me. She wants reassurance, and I don't have much of that.

"You know the mess we're in, and how we got there," I say. "But I'll tell you anyway. Again."

She is now some kind of adult homologue of a child, about to be bundled into bed in snuggly rainment. She wants to hear once again a thousand-times-heard story, caught by the narrative as if it were heard for the first time, wanting to know how it will turn out, caught, enmeshed in the tale as if the foreknowledge of the outcome adds suspense instead of taking it away. This could be called paradox by a cavilling logician, which would reveal that he knew nothing of the security that comes from the simply familiar, though the familiar whatsis of the moment is intrinsically frightening.

So I say, again, how it was that when some of us were putting people on the moon for the first time, the first times, a whole bunch of others were, in effect, burning the books of wisdom and knowledge. We—the minority of people that thought space flight was obviously something that simply had to be achieved—we had to go out there, the way our ancestors got into all of the parts of our small planet.

The moon was out there, I say, and we had to go there. And did. Beyond the moon were the planets, and we had to go there. We hadn't done that yet, but our present enterprise was an alleged first manned shot at a planet. No, we wouldn't land on Jupiter, but we'd get up there, so the program read, and we'd orbit, and then send down complicated hardware that would bring back to our ship samples of the planet. These, the program said, we would return to Earth for analysis and study. Thus, doing what came naturally, we would advance the cause of wisdom and knowledge.

We are the good guys, I say, but the bad guys are agin us and they are mean and powerful. They are powerful mostly in numbers, granted, but numbers count. Some-

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times numbers are all that count. They believe in astrology, I say. They consult horoscopes when they might be reading Newton or Einstein or the New Federalist. Science is bad, they said, because it made those bombs that have been so troublesome since World War II. Better to wear flowers, they said, mildly stoned and speaking of relevance, identity, and the like.

My modest discursion continues for a few minutes, I seeing myself as some kind of tribal shaman exhorting my hairy clientele, gathered round some primeval night-time fire, though my audience here is Nancy only. Perhaps I am trying to get it right for the last time for myself as much as for my generous woman.

I am no shaman certainly, merely one of a number of, as we say, dedicated personnel about to try to rip off what will undoubtedly be the last space shot to be launched from this place. Or, by the looks of things, from anyplace on Earth.

"I don't know why I need you to tell me we're doing the right thing, Nat, particularly now at the last minute. But I do. And we are, aren't we?"

Nancy had no doubt of that, I knew she didn't. If I'd expressed any reservation myself she would have jumped all over me, and with force. Thing was, we were about to take off into the great unknown, following an unblazed path, a trail across the void, a trail whose target had been determined only after bitter dispute, and even then not unanimously. We all needed everything we could get from each other. No choice, from the beginning to where we were now, had been easy. Not even the choice of where we would go.

* * *

"There is no way," I'd said, "that I am going to spend the rest of my life in a tin can."

"You might not have to. Not if we find a happy home in orbit around a nearby star." We hadn't completed our covert study of nearby possibles or probables yet, but we'd been thinking of Barnard's Star, Zeta Reticuli, and others. "You might not have to," Rod Stoneburner said again.

Rod was, in the ordinary way, persuasive. He was, among things, a computer programmer, but here he was giving me the wrong input. He was prematurely thin on top, a condition about which he was unnecessarily self-conscious, one for which he over-compensated with a black mustache of heroic luxuriance. This ornament now quivered with his sense of urgency, of rightness. But I knew he was wrong.

I was steamed up too, trying to keep my temper. This was one of our very early meetings. Seven people were present, all scheduled to be on the flight crew of Jupiter

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One. At this point we agreed on one issue only: we would divert Jupiter One from the stated mission to one more in keeping with our needs, hopes and aspirations. And desperation. We would do this, we said, in the interests of the meaningful survival of humanity, at least in so far as represented by the minuscule part of it that we were.

We proposed to undertake this celestial heist if we could work out the logistics and the tactics, if we could learn to conspire successfully (none of us had heretofore had much experience of that), and if we could find one or two highly (very highly) placed individuals in the Program that we could persuade or coerce or coax into becoming fellow-conspirators.

Rod was, by avocation, an environmentalist, and his thoughts and feelings about what was happening on Earth were such that he wanted us to get right on out, out to have a look at the closest promising stars—and beyond, to some more distant, if need be, and if we could achieve the capability. In our group of seven, brought early on together in this meeting, he was supported by Clara Diamond. She was an astrophysicist, and I didn't know if she was on Rod's side because she was on his side, really, or because they were a couple.

She was slavic, with dusky, dusky skin. A lovely face. On her upper lip was just the trace of a downy but very black mustache, as if she would be with Rod in this enterprise also. That mustache was already giving me some concern. Not that it was unattractive, it wasn't. That whisper of androgenic influence gave a little piquancy. But even with the frozen contributions of our earthbound fellow conspirators we had a genetic pool to think about. Of necessity we would be an inbred community. Nothing wrong with that, as long as we were careful, very careful indeed, about undesirable recessive genes.

The others at that meeting supported me. I was as sick as anyone about what was happening to the earth, and not only to the earth but to so many of the people on it. But my history and my genes told me Rod's far-out proposal to head for the stars wasn't the way to win our new frontier. Or, more likely, even to get to it.

"I might not have to, that's right. But that's a chance I don't propose to take. Nor would I wish it on our children."

Rod was as fired up as I, and now abandoned reason.

"So you'd rather stay here. You like it the way it is. To stay. Ask to be taken off the mission. Develop terminal claustrophobia, or something."

"That's not fair," Nancy interposed. "Nat wants to leave this planet as much as you, and you know it. He'll sacrifice as much as you, Rod, as much as anybody, put up with as much. He wants to be

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more sensible about it, that's all."

I was grateful for Nancy's support, though I didn't altogether appreciate being spoken for. But that was Nancy. Rod's fuse was still sparking.

"The point is this, Rod. We *know* we have a chance, a good one, to go *somewhere* in the solar system. Jupiter, the Belt, Saturn. The odds on finding a good planet in orbit around any of the near stars are enormously longer. By orders of magnitude, Rod, most likely we'd die of old age—and so would our children—before we found one. And, no, I don't like it the way it is, you shouldn't have said that, you know better."

That meeting had ended in exasperation and a degree of acrimony, but it hadn't been a total loss, it had been just one of the many steps that had gotten us from there to here, or from then to now.

About twenty steps after that one, our group by then enlarged to eleven, we'd decided on Titan as our target. Ah, Titan! The largest satellite in the solar system. Not a "real planet" by any means, which was what Rod wanted, but certainly the largest and, we thought, the most likely provisional hope for a provisional part of the human race. The sheer time factor involved in going to the stars with the technology we had, fusion reactor and all, plus Titan's atmosphere, had carried the day. That atmosphere wasn't breathable, no, but our alchemists thought our descendants could, in time, make it so.

* * *

There is a tap on the door and Rod walks in. We, the mutinous crew of Jupiter One, are gathered together in a sterile kind of cross between a garish Holiday Inn and the contagion ward of a tacky hospital. Spread out through this floor of the building, here and there in depressing cubicles, are seventeen of us. We come in various sizes and shapes, and two sexes.

"Rod," I say. Nancy nods.

Rod is the nominal commander of Jupiter One. NASA says so. Once we're off the pad there will be no commander. We are determined to rule by committee, and the committee will have no chairman. We are aware that tradition says that the way to sweep something, anything, under the carpet is to appoint a committee to take care of it. But we think we can make it work. We'll find out.

Rod and I are members of the committee—the first one; our community will rotate through this responsibility. There are four others, three women and one man. This makes a total of six, which is an even number. Thus, on matters of importance, there may be tie votes. There will be no way to break a tie other than by the exercise of reason. Of wisdom and knowledge.

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"The natives become restless," Rod says.

We have clandestine communication with a few people on the outside, cooperative types whose heads are screwed on right. We regret that they must remain behind.

"Will the barricades hold?"

"I think so. But it's beginning to look dicey."

I looked at the quartz thing on my wrist.

"We can advance liftoff by one hour and nine minutes. There's that much leeway. Mission Control knows what the score is, how the situation is developing. They want us off as much as we do, Rod. Build a fire."

Control was indeed what Mission Control had, just now, and would have until we were on our way. After that there would be no Mission Control, not as far as we were concerned. That spacecraft waiting in orbit up there isn't what it appears to be, not on the inside, not by a long shot. Thanks to the work of our small but intensely motivated band of felons there is more fuel up there, a lot more, and more of other supplies and arrangements than Mission Control or almost anyone else knows of.

We have Mylarplex II, with which to construct domes. We have solar accumulators. We have a microfilm library, and a memory-chip library, whose complexities I do not understand. We've spent a great deal of time thinking about what we'll need up there. We have seeds and plants. The vessel waiting for us in orbit is weirdly equipped for what it is supposed to be doing; for what we hope to do with it, it is as well-equipped as we've been able to make it.

Our best equipment, our ultra-secret weapon is, I think, the crew. Nine men and eight women in masquerade. Sarah Cabot, one of our astronomers, has become, by rigorous self-training, a competent agronomist. She bears our most patrician patronymic, but she has the face of a Left-Bank gamin. Abe Eisenberg, wearing the beard of Moses, is a member of the mission to perform geomagnetic determinations. For the real mission he has become one of our chemists. They will work on the problems involved in transforming our atmosphere. Our petrogeologist, Sue Powdermaker, will be our behavioral psychologist. We don't know how much need we'll have for her expertise, but she'll be there, as trained and informed as she has been able to become.

Many talents and skills, none of which is what it seems.

I? My position in this project is peculiar, but my function on the real mission is to know something about everything. Everybody in this crew can do what they're supposed to a great deal better than I can, which gives me transient feelings of inferiority, but I can do more than a little of what each of them can do.

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A human spare tire of sorts, a jack-of-all-trades in reserve. I didn't try out for the part, it just worked out that way.

Nine men and eight women. We'd wanted an even number and an even split but hadn't been able to achieve that. So there was an odd man out. Perhaps that would add a certain unplanned realism or tension to our community. We'd find that out also.

* * *

"They want us off as much as we do, Rod," I say again.

Rod looks into the far distance. The black mustache moves back and forth, seemingly autonomous.

"They do," he says. "I'll see what I can do."

"Get the sixty-nine minutes. All of them."

Nancy and I are alone again, and there is nothing to do but wait. Now I, and Nancy, all of us are caught in a chain of inexorable events over which we have zero control. All of us are except Rod Stoneburner: the commander can approach Mission Control and apply pressure to slip through the window the moment it opens. The rest of us are frozen into varied positions of stasis and frustration. I can't see the others, in their cubicles, but I think of them.

I make another move, and the most generous woman in the world says, "We'll wait. We'll wait, Nat, until we're—in some other place.

I am, for a moment, frustrated. Then my distracted self gets back on track and realizes that, rather than having been denied, I have been given one more gift, one more in a long progression of things too good for me.

Some time later Rod comes in. I see again why it is that he is the commander. Until liftoff. He has had his way.

"Get ready. It will be coming over in a moment."

"Now hear this," comes from the squawk box, and we are told how it will be.

Our gear, our few possessions, are on board the rocket, waiting for us. We and the others, emerging from our places like pirates from caves, go to be suited up. Clara and Rod, Sue, Abe, Sarah, Nancy and I, the others. Something in this strikes me, suddenly, as hilarious, and I laugh. The looks of the others quickly remind me of the gravity of our position. I turn the laugh inward, but not off. I touch Nancy's shoulder, and hold her for a moment. I feel my stem-wound Hamilton in my secret pocket. My security blankets are in order.

One hour, twenty-two minutes and three seconds later there is something of the excitement of the old days in the voice of Mission Control:

"We have liftoff."

The mob, too late, pours through the first breach in the fences. ★

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THE DIRTY OLD MAN

or

Nocka, Nocka, Who Goes There?

CRAIG STRETE

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This is an Indian revenge story about these two white people who meet a dirty old man. Indian author Vine De Loria said, "It's one thing to die in battle, but what do you do when you're laid low by an anthro?" The answer is write a story about these two white people who learn the following lesson . . .

WHEN THEY FINALLY got the old man to eat, he ate with his fingers. Bullock, the linguist, looked disgusted.

"Some holy man he makes! I'll bet the old goat hasn't taken a bath in twenty years!"

Miss Tarantella, the group anthropologist, looked dangerously close to retching. "How can he stand to eat like that? He's absolutely filthy!" She wrinkled her pinched nose with disgust and her thick glasses slipped down and fell into her lap. She jerked reflexively, her lap sensitive to the touch as so many things are that are untouched.

The old man wiped his fingers on his chest and grinned at them with as many teeth as he had. Two to be exact.

"Good! More eat! More dirty eat!" he said, gesturing with his hands at the near-empty pot.

Miss Tarantella put her glasses back on her nose and peered over the top of them at the old man. "No more eat! Talk! You talk first and then you eat!"

"Me no want eat! You eat! You dirty you not eat! You clean eat!" said the old man with a two-toothed smile.

Bullock looked down at his knuckles. He sure could pick them couldn't he. First Tarantella, that dried out old prune of a woman. Now this dirty old lunatic Indian the woman had engaged as a guide.

"What talk? White fools up the flukey wheel! Go down the belly! Chomp! Chomp! Not safe! Not safe!" said the old man.

"It's hopeless," said Bullock. "He's as unreliable as a weather report. All of his gears are loose."

"I'm not leaving this mountain until I get what I came for!" announced Miss Tarantella stoutly. "I am not accustomed to failure! If I came here to track down the legendary cave of the Nocka-Nocka, then you can bet your camp stool, that I intend to do just that! The word *quit* is not in my vocabulary."

Miss Tarantella was a positive, overweight woman with no sense of humor. Bullock's image of her lay somewhere between a German military band whose oompah oompahs had gone awry and a self-taught virgin who played at human by ear and was tone-deaf.

"Nocka-Nocka! Chomp!" said the old man and he pointed a greasy finger at Miss Tarantella. "Ho the hot one! Big chomp!"

He clamped his fingers together and made chewing motions with his hands.

"The hell with your disgusting

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eating habits, you filthy old beast! What about Nocka-Nocka's cave? Where is it?" clamored Miss Tarantella, whose patience was legendary for its absence.

The old man just scratched his chest through a hole in his tattered shirt and giggled.

"Maybe he doesn't really know anything about Nocka-Nocka," suggested Bullock timidly. "Maybe there is no such thing as a. . . ."

"Are you suggesting that I am WRONG in my research? Is that what you're suggesting?" said Miss Tarantella, her icy tone reminding Bullock of a wild weekend on a polar ice cap.

Bullock shivered involuntarily and quickly retracted his suggestion. Bullock was fed up with the whole thing. If they never found anything it would be fine with him. He didn't care one way or the other.

Two anything but fun-filled days following an insane old Indian up a steep mountain on a wild goose chase was no picnic. Putting up with Miss Tarantella was something else again. Often in the last two days, Bullock had prayed that an avalanche would start and carry those two off the mountain. Only idiots and Indians climbed mountains anyway, as far as Bullock was concerned.

"Nocka-Nocka," nodded the old man. He pointed back over his shoulder toward the top of the mountain.

The old man scooped up a handful of dirt, dumped it in with what was left of the beefstew, and began stirring it around with his fingers.

"Christ!" said Bullock who was only a linguist and didn't really give a damn. "Is that some kind of custom?"

"I think he's just being nasty," snarled Miss Tarantella. "These filthy old Indians are always trying to be purposely disgusting. I guess they think it's funny. He'll probably expose himself next!"

Bullock just shrugged. He sort of admired the way the old boy got under Miss Tarantella's skin. Personally, he found the old man kind of charming, in a smelly sort of way.

The old man rattled off a long curious speech in a Calusa dialect that Bullock found hard to follow.

"What'd he say? What'd he say?" demanded Miss Tarantella.

"I'm not sure I got it all," Bullock said. He tried a few phrases on the old man, trying to get him to repeat the message. The greasy old man just sat there cross-legged, inscrutable as a rock. He refused to say anything else.

"Well?" inquired Miss Tarantella.

"Well, I didn't get it all," admitted Bullock, trying to sort it out in his head. "And I'm sure I'm getting some of it wrong, especially the part where I think he said 'Buy War Bonds'."

"Never mind what you didn't get, you incompetent idiot! What

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did he say about Nocka-Nocka?" snapped Miss Tarantella.

Bullock bristled at the words incompetent and idiot but let it pass. "Well, I think he said Nocka-Nocka's cave is only a bit farther up the mountain."

"Is that it? The old ass has been saying that for the last two days! Didn't he say anything else?"

"Sure. I think he asked for something dirty to eat or at any rate, he said something about something dirty to eat."

"You're one hell of a linguist!" she said.

Bullock shrugged. Calusa wasn't one of his better languages.

The old man pointed at Miss Tarantella who had taken a notebook out and had begun jotting down some notes in it.

"She write down sex? Hot on hot on hots! Watch go to bathroom! Take picture! All this? She is what?"

Bullock, amazed at the old man's strange grasp of the English language, pointed at Miss Tarantella. Not exactly knowing what the old man was getting at, he said "Anthropologist. She is an anthropologist."

The old man grunted and shook his head affirmatively. "Dirty eat! Pictures of sex! Chomp! Chomp!"

Miss Tarantella put down her pen and glared at the old man. "Forget the god damn dirty eat! Can you take us to Nocka-Nocka's cave?"

"Can take," said the old man. He dipped a handful of mud and

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beefstew out of the pot and slapped it on his face and chest and vigorously rubbed it in.

"Is he crazy?" asked Bullock, turning green.

"Filthy!" was all Miss Tarantella could say.

* * *

They followed the old man up the rocky trail; going slowly to accomodate the huffing, puffing fat woman whose idea of exercise was taking the lid off a specimen jar.

"Tell him to slow up! And don't follow him so close!" groaned Miss Tarantella. "You know I can't stand his smell."

"How much farther is it?" asked Bullock, who was getting tired himself.

"Chomp!" said the old man and kept right on walking.

"Inconsiderate clod!" muttered Bullock under his breath.

"Filthy!" added Miss Tarantella, in case somebody had forgotten her opinion.

"I wonder if he's leading us on a wild goose chase?" grunted Bullock as he tried to drag Miss Tarantella over a huge rock that the old man had managed to climb over with no difficulty. The old man was disgustingly healthy.

"I'll wring his scrawny neck if he is!" puffed Miss Tarantella, who was having a hard time getting air. Her cheeks bulged in and out like sails flapping in the wind. She floundered over the rock like a pregnant whale in distress.

"Somehow, I can't help feeling that he knows more English than he lets on," said Bullock, straining his arms almost out of their sockets trying to get the fat woman back on her feet again. "There's something very fishy about him."

Miss Tarantella wobbled unsteadily on her feet and grunted. "That's just the way he smells."

The old man stood further up the trail, motioning for them to hurry. "Nocka-Nocka!" he yelled and pointed.

Bullock and Miss Tarantella staggered up to him. There in the side of the mountain was an enormous cave-like opening under a wall of overhanging rock.

"Is that it?" asked Miss Tarantella, flushed with exictement.

"Chomp! Chomp!" said the old man.

"It better be or you'll regret the. . . ." started Miss Tarantella.

Suddenly, a heaving mass as big as a semi-truck roared out of the cave. It had dozens of green eyes, hundreds of red tentacles and bumps all over it. It had blue eyes too and big mouth-like openings all over with big shiny white teeth sticking out here and there. It had the shape of a ripe squash and the general complexion of an overripe tomato. It swarmed and it crawled and it oozed. On what might be the top of it, firmly resting on several white

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bumps, sat three pith helmets not unlike the pith helmets that Bullock and Miss Tarantella wore.

As soon as the creature burst out of the cave, Miss Tarantella let off a scream that made an air raid siren sound like silence. Bullock contented himself with letting his mouth flop open in an imitation of the Grand Canyon.

In a matter of seconds, the creature swooped up Bullock, Miss Tarantella and the old man too. It held them up in the air with its tentacles.

"Woof!" said Nocka-Nocka.

Miss Tarantella kept on screaming. Bullock, made of less sterner stuff, immediately passed out.

The old man however was perfectly relaxed in the tentacled grip of the monster.

"Woof! A hot one!" said Nocka-Nocka and he wrapped a tentacle around Miss Tarantella's mouth, cutting her off in midscream.

Nocka-Nocka pointed all of its blue and green eyes at his captives. First he looked at Bullock.

"Yum! Clean!" Nocka-Nocka said.

He looked at Miss Tarantella.

"Yum! Clean! Big Chomp!" said Nocka-Nocka.

Then he looked at the old man

"Yeeeeeech! Filthy!" said Nocka-Nocka and he dropped the old man like he was a live coal. The old man landed on his feet with practiced ease.

The monster turned and oozed and flowed and crawled back into the cave, clutching the squirming body of Miss Tarantella and the unconscious one belonging to Bullock.

The old man crept near the mouth of the cave and listened. He heard an enormous slurping, gulping sound and several big cracking noises that sounded like dry sticks breaking.

Solemnly, he went over to a big rock near the mouth of the cave. Taking a piece of chalk from the pocket of his dirty shirt, he put two more marks on the rock alongside the three already there.

Then without once looking back, he started back down the mountain.

"Chomp! Chomp!" he said to himself as he walked, and his face lit up with a smile, remembering. ★

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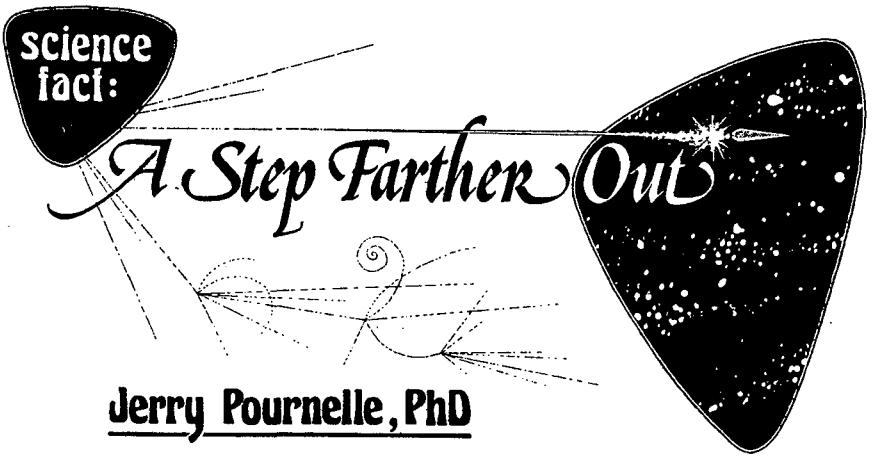

Jerry Pournelle, PhD

SCIENCE AND MAN'S FUTURE: PROGNOSIS MAGNIFICENT!

WELL, LET'S SEE: should I begin with Freeman Dyson's highways into space, John McCarthy's home computer terminals, Herman Kahn's outlook for mankind, Frank Drake's search for extraterrestrial intelligence, George Gatewood's destruction of more planets than the Klingon Empire, Barbara Brown on bio-feedback, Adam Reed on brain-computer interfaces, or something simple like the limits of the universe? (And if that isn't a catchy enough lead, you shouldn't be reading this; you're dead from the neck up.)

This is, of course, my annual report on the state of the sciences, occasioned by the 1976 annual meeting of the American Association for the Advancement of Science. The AAAS meeting this year was seven days long; in previous years it's been only five. Even with seven days it was a 20 ring circus, and inevitably there were generally at least four sessions one needed to attend simultaneously. Next year it will be worse. I doubt that the seven day meeting will happen again. Like some critic's review of the painting "White on White" we may say of the seven day meeting, "Perhaps it needed to be done, but having been done it need not be done again." Seven days of concentrated scientific excitement is just too much—certainly it was for the press corps, and I think for the meeting attendees as well.

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Each of the topics mentioned in my first paragraph deserves a column of its own, and over the next year we'll have several of them. This month I'll try to round them all up—which isn't easy to do.

Let's start with the good news. MAN'S FUTURE MAGNIFICENT, says Hudson Institute. Of course one expects Herman Kahn to say that. (Actually, Herman was down with some exotic brand of 'flu and his speech was delivered by his associate William Brown, but that's a detail.) The Hudson Institute is known for its long-range optimism—pollyana in person, some say of Kahn. Pollyana or not, it's hard to argue with the numbers they've generated at HI. For example, they've analyzed the assumptions in *The Limits to Growth* model, and found them wanting. Of course, so have we, right here in this column, but we used the entire solar system as our base of operations. Kahn's people stayed with Earth, did not assume asteroid mining or O'Neill colonies, and still came up with a good prognosis.

For example: the LIMITS model ignores a very large number of sources for "non-renewable" raw materials. For aluminum it uses only bauxite, and thus concludes we'll run out in a couple of hundred years—yet aluminum is one of the four most common elements in the Earth's crust, and is easily converted into useful form. You don't need bauxite, although of course that's the cheapest source and thus the only one extensively exploited at the moment.

Item: the LIMITS model very nearly ignores recycling, although most "non-renewable" resources are recyclable. Iron and steel, for example, exist in highly concentrated forms—in city dumps. Again, it's only economics that keep us from mining them there. Most raw materials are not "consumed" in the sense that they're used up forever. A few, like the lead put into gasoline, are so dispersed that they can't be recovered for any price; but most can be, at costs higher than present, but not high compared to the GNP.

Item: with *present* technology and presently used arable land, the world food crop can be increased by a factor of between 20 and 100. We've already mentioned here that if the average Indian farmer could get his food production per acre up to what Japanese peasants achieved in the 12th Century, India would have no famines for a long time to come.

I could go on, but the bottom line is that Kahn concludes the world can, with easily forseeable technology and known resources, support 15 billion people at an average 1974-dollar income of $200,000 per capita, for hundreds of years. Discount all those numbers by quite a lot and there's still room for a lot of hope. Homer Sap may be about for a long time. The "hard problems",

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says the Hudson Institute, are not so hard after all.

That's the good news. The bad news is that we don't know how to get there from here. Even Kahn and Brown look a bit gloomy when faced with the next quarter-century, and their opponents are positively shocked. Daniel Bell, Harvard sociologist, asked Brown "How can you say 'magnificent'? Just how can you be so complacent? I have never liked the Forester (LIMITS) model because those people know no economics, but what you've said is ridiculous. Forty-eight percent of the population of Mexico is under 15 years old. You saw what the increase in the youth cohort did to the US in the 60's, now it will happen all over the world, and you tell us everything's fine."

After which the meeting came apart, with grey-bearded scientists shouting at each other. When order was eventually restored, it appeared that each side was talking to a different point. Brown—and invisibly behind him, Herman Kahn—was trying to answer the challenges presented by the Club of Rome. Bell and his friends are worried about tomorrow. Neither really heard what the other was saying, and the short-term worriers, infuriated by what they think is complacency, have, I think, missed an important point: it matters what view you take of the year 2100. Decisions that must be made today to get us to the year 2000 will be profoundly influenced by your long-term outlook. If you accept LIMITS and Zero-Growth, your solutions to the coming famines and droughts—and those we *will* have—are not going to be the same as they would if you accept Kahn's world of 2100. The best analogy I think of is a ship sailing unknown seas when a storm comes up. If you think there's a continent and safe harbor ahead, you sail on; if not, you turn back. In a real sense, then, mankind is at a turning point, perhaps as important a turning point as we've faced in all human history.

* * *

More bad news. Two years ago, the fusion research people fairly breathed optimism. The general impression was Real Soon Now. No more. This year you could cut the gloom with a knife. Fusion is not going to save us. Everyone still believes it will work—some day—but the chances of significant and useful fusion power coming on line before 2000 are so slim that few, if any, planners even make allowances for the possibility. Let me hasten to add some good news before plunging on with the bad: we don't *need* fusion. Ocean thermal, space-based, biological, and other sources of tapping solar energy can and will be able to power Kahn's affluent world: but they won't get us to the year 2000.

There were two days of debates, presentations, pitches, arguments, screaming matches, and general dis-

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cussions of energy. The participants were high-level people, including Marjorie Hart, Senior Planning Advisor to Exxon, David Rose of MIT, Ernst Habitcht of the Environmental Defense Fund, and Donald Allen, President of Yankee Atomic Electric. There were economists and engineers, nuclear enthusiasts and anti-nuclear activists; and when the two days were finished there were some remarkable agreements. Remarkable, but frightening.

For one thing, over the next 15 years there are only two choices: coal, and nuclear fission. Actually those aren't mutually exclusive, although they *are* collectively exhaustive. We're going to use coal, and in large quantities. The question is, do we cut down on coal as much as possible by building nuclear plants, or do we forget nuclear power and set up lots of drag-lines for strip mining?

But—what happened to the other choices? Windmills, tides, geothermal, solar, and all the rest of them? They went down under a volley of equations and hard numbers. Take tidal: if you built a damn around the entire USA (and wouldn't that do wonders for the environment?) and had a 100% efficient system for converting tidal energy to electricity, you could power the city of Boston. That may not be worth the cost.

Geothermal: first, it's localized. It may play an important part in regional power systems, but we haven't as yet the technology for distributing that power across the country. Second, it's more polluting than early enthusiasts believed. A look at aerial photos taken downwind from The Geysers in California, or the Mexican geothermal plants above the Sea of Cortez, will convince you of that. The last word may not have been said on geothermal power for the long run, but for the short you couldn't even write the Environmental Impact Statements required for a construction permit.

Windmills—same problems, only worse. Unreliable. Few places with strong steady winds. Again very useful devices for local remote areas, but hardly likely to provide as much as 1% contribution to the national energy budget.

I could go on, but there's no point: I assure you, the consensus was remarkable. It's coal or fission, with no other possibilities in the running. Yes: I realize that we've left out methane and ethanol, the one produced from sewage, the other from growing plants. I leave them because they take a lot of discussion, and I'm not myself convinced that methane and methanol can't make a real contribution to fuel saving. Ethanol is a different story: there's not that much suitable cropland that won't be needed for increased food production, and the transport and collection system for gathering ethyl alcohol produced in thousands of small-holder farms

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hasn't even been planned, much less begun. Methanol from sewage has another problem: why the hell should we take perfectly good high-grade organic nitrogen fertilizer, turn it into fuel, burn it to produce electric power (and waste heat), and then use that power to fix nitrogen to make high-grade inorganic fertilizer? Besides which, one power company that tried it was told to stop the research: it was an improper use of the rate-payers' money. Power companies should, according to the California Public Utility Commission, produce power, not engage in fuel research.

I want to get off the energy crisis (for this column; it deserves another of its own) but before I do I can't neglect conservation, which *can* help. By conservation I don't mean turning off lights (although that helps.) What's needed is restructuring of the legal system. It makes no sense at the moment. For example: the minimum cost to a power company for equipment to generate a kilowatt of electricity is $500. For nuclear that's higher. Yet I can go buy a cheap air-conditioner that *wastes* a kilowatt, and save myself $100 because I didn't buy a more efficient gadget. Is it reasonable that I save $100 and cost the ratepayers $500?

Conservation means building codes that require decent insulation in both private houses and offices; architecture that doesn't waste power; rates that make it expensive to use electricity during peak periods; research into bottoming cycles (ways to get more power out of the low-grade steam at the end of the power cycle—useful in 2 ways, for direct generation at present installations, and as research into ocean-thermal systems we'll need in the long run). Real conservation requires sensible laws (or even the absence of laws; make energy cost the consumer and he'll find ways to save it himself).

So much for the energy crisis. As I've reported year after year, the prognosis doesn't change, but we're no closer to an answer now than we were when I began this column. This year is worse, because the power companies must *now* make decisions. In the next couple of years they have to order new power plants—and they must *now* decide what will fuel them. Coal or fission? They see no other choices worthy of billion-dollar risks.

* * *

So what else is new? Plenty. Let's assume we get past the energy crunch and look at what else we might have before the year 2000.

Biofeedback. The results are uncanny, and they're just beginning. Barbara Brown, the VA Hospital physiologist whose book started a lot of the current fad, is now convinced that there's nothing the eastern yogas can do that you can't teach yourself in weeks to months. Think about that for a moment:

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heart rate, breathing, relaxation, muscle tension, glandular responses—every one of them subject to your own will. Dr. Brown is convinced of it.

The results are pouring in, and not just from her VA hospital in Sepulveda, either. Ulcers cured, neuroses conquered, irrational fears and hatreds brought under conscious control, and all without mysticism. When I put it to Dr. Brown that there was already far more objective evidence for the validity of her psycho-physiological theories than there ever has been for Freudian psycho-analysis, she enthusiastically agreed.

She also warns would-be enthusiasts that there are a lot of plausible-sounding charlatans jumping onto the bio-feedback bandwagon. People are getting rich off selling the equipment—much of which is worthless and very little worth what it costs. For more on this subject, including equipment reports, see this column in coming months. For now, the news is good: there's hard, objective evidence to show that you can, with patience (but far less than yoga demands) learn to control many allergies, indigestion, shyness, fear of crowds, and stage fright. That's got to be good news.

After I left the AAAS meeting in Boston, I wandered the streets of New York between appointments with editors. On the streets and avenues around Times Square I found an amazing sight. (No, not *that*; after all, I live only a few miles from Hollywood, and thus am rather hard to shock.)

Every store window was filled with calculators. Not merely "four-function" glorified arithmetic machines, but real calculators with scientific notation, trig, logs, statistical functions, and the rest. Programmable calculators for under $300. Presumably there's a market for those things: which means that we may, in a few years, have a large population of people who really do use numbers in their everyday lives. That could have a truly profound impact on our society. We might even get rational decision-making.

John R. McCarthy of the Stanford University Artificial Intelligence Laboratories certainly hopes so. McCarthy is sometimes called the "Western Marvin Minsky". We spent a pleasant evening with him. (We in this case is not editorial: myself, Poul and Karen Anderson, Larry and Marily Niven, and Russell Seitz.) McCarthy forsees home computer systems in the next decade. OK, that's not surprising: MITS in Albuquerque will now for under a grand sell you a computer that can do more than the first Univac and Illiac machines ever thought of. McCarthy envisions something a great deal more significant: information utilities.

There is no technological reason why every *Galaxy* reader could not, right now, have access to all the

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computing power he or she needs. Not wants—what's needed is more than what's wanted, simply because most people don't realize just what these gadgets can do. Start with the simple things like financial records, with the machine reminding you of bills to be paid and asking if you want to pay them—then doing it if instructed. At the end of the year it computes your income tax for you. Well, so what? We can live without all that, and we might worry a bit about privacy if we didn't have physical control over the data records and such. Science fiction stories have for years assumed computer-controlled houses, with temperatures, cooking, menus, grocery-orders, etc. all taken care of by electronics.

But what of publishing? McCarthy sees the end of the publishing industry as we know it. If you want to publish a book, you type it into the computer terminal in your home; edit the text to suit yourself; and for a small fee put the resulting book into the central information utility data-banks. Anyone who wants to read it orders it from his own terminal, either as words on a TV screen or hard copy; no printer, and no publisher. The author gets his royalty directly from the purchaser. Every publication becomes "professional".

With such a plethora of books, critics and editors would probably grow in importance. "Recommended by Jim Baen", or "A Frederick Pohl Selection" would take on new significance, and one assumes that these editors would continue to work with authors since they'd hardly recommend a book they didn't like. "Big name" writers would have little to worry about, with their readers setting in standing orders for their works; new writers would probably have to get a "name critic" to review their stuff.

OK, still not all that new for science fiction readers; but did you catch the time scale? The equipment exists *now*. The telephone net to link nearly everyone in the US with the information utilities exists *now*. Computer electronics costs are plummeting (I paid $150 for my TI SR-50, and I could have bought one in NYC last week for $65) and will continue to do so. McCarthy's home terminal world could be with us in the next ten years, and fully developed in twenty.

By then we may not need the home terminals. Dr. Adam Reed of Rockefeller University has a new scheme: direct computer-to-brain linkups. Incidentally, Dr. Reed made my day by saying, right there in the AAAS press conference, how much he'd liked a couple of my stories which assume implants that let the owner talk directly to computers. I had not, however, been far-out enough in his opinion.

Ten years. In ten years, Reed thinks, we will have cracked the code that the brain uses for

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information processing. Once that's done, information can be fed directly into the brain's central processing unit without going through peripheral equipment such as eyes and ears. You don't read a book: the computer literally squirts its contents into your head.

In later discussions with Reed I asked if it would be the same experience; that is, when I read *War and Peace* there is more than a transfer of information, there is also the emotional response I have to the various scenes; that would be lacking in the direct-information-acquisition system. We agreed that there would probably remain a few nuts who read, just as TV hasn't quite eliminated literacy in the US—but that the normal method of acquiring information, particularly dull books that one wants to have read but doesn't want to read, would be through computers.

Now the implications of *that* are staggering. First, those who can afford a computer implant will quite literally know everything known to the human race. If a question has an answer, you can get it answered in milliseconds (assuming that the McCarthy-type information utilities have been developed, as one supposes they will). Want a multiple-regression equation linking weather, gasoline consumption, electricity generation, skip keels laid, and the price of wheat futures? Merely think the question and wait; it shouldn't be long before you have it.

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There are uglier possibilities: could computer-link implants be used for thought control? That possibility horrified my friend Ed Edelson of the New York Daily News, so much so that it was all he could think about, and the result was a quarrel between him and Larry Niven. Edelson kept asking the other computer scientists whether they didn't think this was monstrous and ought to be suppressed. None did, which terrified him.

Larry's view was that tyrannies already have the means for efficiency, and why suppress something that can make us a lot smarter?

Take your choice on those views. I'm still trying to appreciate the magnitude of what this means. What kind of world will it be when an appreciable part of the human race literally knows everything? And don't forget that these implants are a form of electronic telepathy: you can transfer enormous amounts of information to the computer and thence to someone else, and do it in seconds—and the first successful experiment may take place in ten years. By the year 2000 "education" as we know it may be obsolete, with students absorbing information the way computers absorb punched cards or tapes.

On a shorter time-span, Reed is convinced that implants that "talk" to you—that is, feed information through connection to auditory and optic nerves—will be available, at least to the rich. Understand the implications of that: we can make the blind see and the deaf hear, by connecting computer-controlled devices into their nervous system, by-passing ruined biological sensors. When the full information-code system is developed the same can be done for patients without optic and auditory nerves.

Go further: when the coding system is completely known, a human personality can be "recorded", and if the cloning experiments prove out, be transcribed into a younger edition of the same person: know what you have learned at fifty and put it into a body aged 25.

Far out? Science fiction? No. There's a real possibility that it can happen to some of you who read this column.

It's getting hard for science fiction writers to keep up: even we're getting future shock. What can we write about that some scientist isn't already doing?

ETI: Extra-Terrestiral-Intelligence. Surely *that* belongs to sf writers?

Yes. Frank Drake, Carl Sagan, and the others have been trying, but so far they've received no messages from Out There. Of course they've only listened for a short time, to a few stars, and on a few frequencies. They've also had a listen at a few nearby galaxies. As Sagan puts it,

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we can conclude that in those galaxies no one just now (well, just then; it takes quite a while for signals to get here from another galaxy) wants so badly to talk to *us* that they've built a system that can do it.

George Gatewood of the University of Pittsburgh has another approach: he's looking for planetary systems in close-by stars. There've been a number of recent publications announcing such planets, in places like Tau Ceti, Epsilon Eridani, etc. Gatewood has new astronometric techniques for analyzing already-collected data, as well as gathering new information, and he used it on 33 nearby stars: with horrible results. He destroyed more planetary systems than the Klingons.

There aren't any. At least, there aren't any that have Jupiter-sized planets, with the possible exception of Barnard's Star, and that, alas, is a wretched red dwarf that almost certainly has no inhabitable planets even if it does have a Jupiter-like companion.

There's still hope. Gatewood's techniques can't find terrestrial-sized planets at interstellar distances. Freiland at Tau Ceti *may* yet exist; we don't know enough about planetary systems to be able to say. After all, Jupiter-size planets don't *have* to form in order for smaller planets to come into being. Or do they? As Gatewood says, once we have a sample larger than one we may be able to make some generalizations.

He's also got a proposal: give him one shuttle payload and about $200 million bucks, and he can detect terrestrial planets up to 15 light years away. Gatewood isn't the only one who hopes we'll get telescopes in space. As Phillip Morrison of MIT put it, the only way we can really study our own sun is to learn a lot more about other suns—and it's insane not to know our sun as well as possible. Unfortunately, although NASA asked for funding to develop the Large Space Telescope (LST, and that's *got* to be one of the most unfortunate names for a science project in history; reminds me of Okinawa), Congress put the project off for another year. LST isn't dead, but this is the third delay in program-start, and some of us are getting worried.

I'm coming to the end of my space, and I still haven't talked about X-ray objects in space (and crashing neutron stars, a theory almost certainly wrong but beautiful in conception). I've said nothing about the universe—is it open or closed? (Some think yes, some no, but the evidence is itself fascinating. Best evidence is still for "open", but stand by.) I haven't touched IQ and intelligence, new theories about the origins of the Earth-Moon system, or Viking. I've had to ignore molecular biology, climate research, upper-atmosphere

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physics (aerosol cans haven't killed us yet and maybe they won't after all) or the care and feeding of child prodigies.

I can't, though, ignore Freeman Dyson's Space Highways.

* * *

Some readers will recall that in my own stories I often postulate laser launching systems: that is, a very large laser that stays on the ground provides the energy to put spacecraft into orbit. It wasn't my invention: I took the concept wholesale from published work done at Avco-Everett Research Center. It's not only feasible, it seems inevitable, and we've discussed it before in this column.

Dyson wants the US to build such a system. It is, he says, far better than the shuttle, because it will give access to space—not merely for government and big corporations, but for a *lot* of people.

Dyson envisions a time when you can buy, for about the cost of a present-day house and car, a space capsule. The people collectively own the laser-launch system, and you pay a small fee to use it. Your capsule goes into orbit. As I proved in the very first of these columns two years ago, once you're in Earth orbit, you're halfway to *anywhere*. Specifically, you're halfway to the L-5 points, if you want to go help build O'Neill colonies. You're halfway to the asteroids, if you'd like to try your hand at prospecting. You're halfway to Mars orbit if that's your desire.

America, Dyson points out, wasn't settled by big government projects. The Great Plains and California were settled by thousands of free people moving across the plains in their own wagons. There is absolutely no reason why space can't be settled the same way. All that's required is access.

Dangerous? Of course. Many families will be killed. A lot of pioneers didn't survive the Oregon Trail, either. But if we've such a horrendous surplus of people on this planet, why is it the same people who are so enamoured of Zero-Growth also want to protect everyone from every conceivable risk? Dyson's vision is different. Perhaps his first name has something to do with it? Because he's right, you know. That kind of Highway to Space would generate more true freedom than nearly anything else we could do; and if the historians who think one of the best features of America was caused by our open frontiers, and that we've lost much of our freedom through loss of the frontier—if they're right, we can in a stroke bring back a lot of what's right with the country.

So; combine it all. Dyson's Highways; Brown's bio-feedback; McCarthy's home terminals and Reed's brain-computer links; Kahn's view of the future, and even my own ideas on survival with style. It's all for real, you know. Not science fiction at all. We've only to reach out and grasp it.

Why the hell don't we get at it?★

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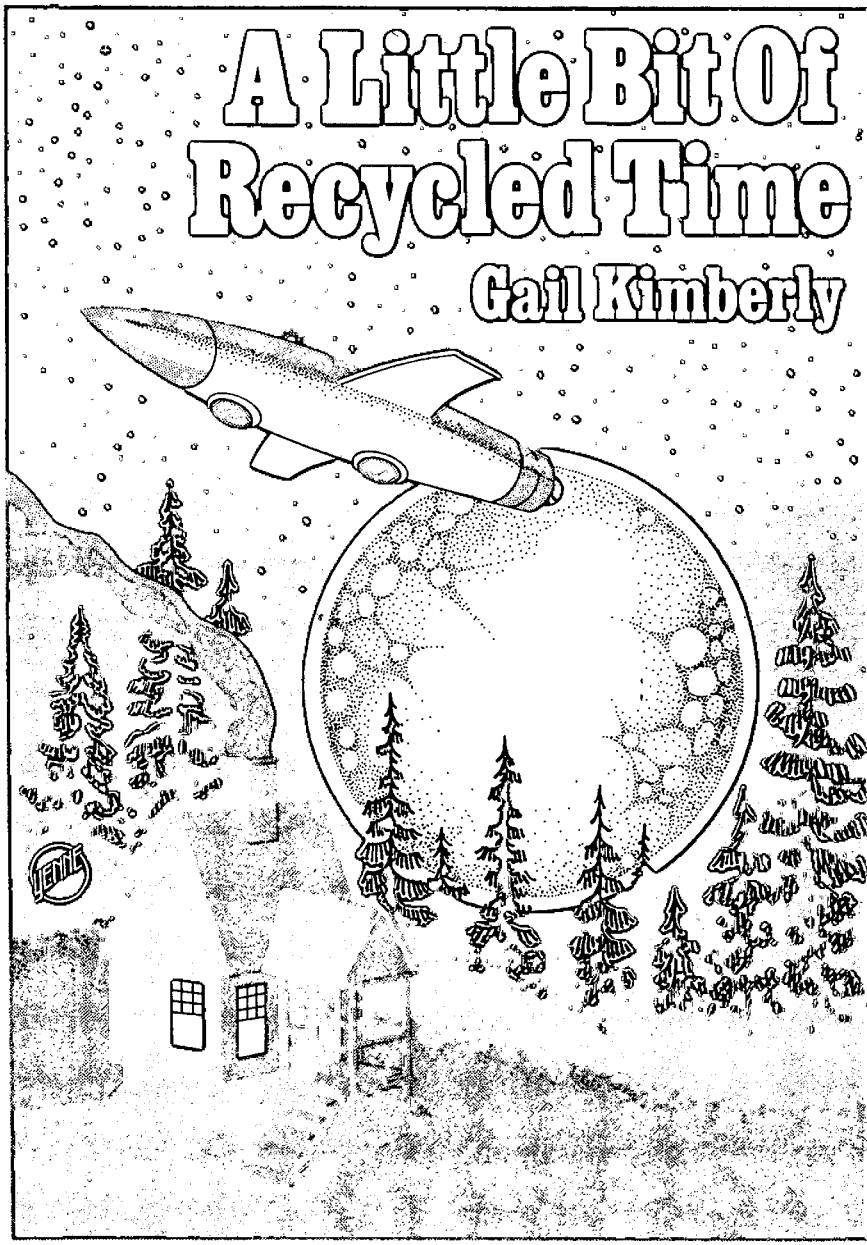
A Little Bit Of Recycled Time

Gail Kimberly



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The boy is father to the man, the future is born of the present; nothing else would make any sense.

EVEN BEFORE he was really awake, Jeff knew his father was hitting his mother again, knew as he rose through layers of sleep that her cry of pain was awakening him. The way it always did.

But now that he was fully conscious the night was silent. Through the square of window beside his bed he could see the trunk of the spindly pine tree outlined in the moonlight, and the silver sheen on the roof of his father's old 1963 Ford parked under it.

Then his father's voice rasped through the thin wall, growling brutal words like those that had bruised Jeff's own ears so many times. He shivered, tasting the sickness that always soured his throat at such times. He turned his gaze toward the bedroom door. His mother would be coming through it soon, at least he hoped she would. That way he knew that for the rest of the night she would be safe. And who knows? Tomorrow or the next day his father might go away again—and stay away this time, for always.

Those were the good times; when his father was gone. Happy times when his mother and he had gone for walks along the roadside, finding nuts or berries or wildflowers; or had sat on the sagging front porch after he got home from school and played fish on the cracked top of the old wicker table the Andersons had given them. The Andersons sometimes brought them groceries and hand-me-down clothes as well because they knew his father was gone and his mother wasn't too well.

Of course, his mother had food stamps so they could get their own groceries, but Jeff knew they were poor. When his father was gone that didn't seem to matter because they were so happy, but when his father came back, Jeff knew what poverty was all about. It meant his father sat on the front porch all day in his undershirt, staring down the road that ran past their lot, through the woods, and down the mountainside into town, the bottle of whiskey beside his chair getting emptier. It meant that his mother stayed in bed most of the time and hardly ever laughed or played cards with him. It meant that when Jeff got home from school he had to get right at the chores or get a licking.

"Kids like you nowadays got it made," his father would tell him. "Why, when I was a kid I had to

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walk four mile to school and four mile back, no matter what the weather, even when it was bitter cold or pouring down cats and dogs. You and your school bus! You don't know what hard times is, boy."

When his father was feeling worse than usual, Jeff had to be careful to stay out of his way or get a licking for no reason at all.

He was cussing at his mother now, and Jeff knew she wouldn't say anything back. She'd just put on her old brown chenille robe and come into Jeff's room.

He watched the door and sure enough, the knob turned quietly and it opened a crack, letting in a faint smell of the salt pork and cabbage they'd had for dinner that night. Then it closed and she was standing beside him.

She was whispering. "Jeff? You asleep?"

"No, Mom." He slid across towards the window, leaving his pillow so that she could lay her head on it. She collapsed weakly on top of the covers, hardly even moving the little bed with her slight weight, her face a pale glimmer next to him.

"I'm sorry he woke you," she said. "You need your sleep for school tomorrow, so you'll be fresh."

"It wasn't him. I just can't stand to hear you crying."

"Oh Jeff, I'm not crying. I'm just fine."

"He hit you again, didn't he." It wasn't a question.

A thin sigh. "It's hard on a man to be out of work, Jeff. That's why you've got to get your schooling. It's important. Your Pa and I never really had the chance."

"But Mark's father's out of work too, and he's real nice."

"Jeff, did you remember you're going to have a birthday next week?" She was trying to make her voice happy. "Your ninth birthday, and you're going to have a party."

He was suddenly interested. "A party? I'm going to have a party?"

"Freda Anderson says Julie's birthday's just the day after yours, and why don't you both celebrate together at their house? She says we'll have the party on Julie's birthday, because that's Saturday, but she and me are going to bake two cakes, one that says 'happy birthday Jeff' and one that says 'happy birthday Julie', and there'll be games to play, and prizes . . ."

But Jeff wanted a bike for his birthday and he knew he couldn't have it, and the thought of watching Julie opening all the presents he knew she'd get and him not getting the bike he longed for dimmed his first excitement.

"Don't that sound like fun, Jeff?"

"Yes," he said.

"Oh, it *will* be. It *will* be fun."

She was silent and Jeff listened to her breathing, that always sounded sort of scratchy, and to the sighing

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of the October wind through the tree branches.

Then she spoke again. "Did I tell you what I saw this morning, Jeff?"

"No, Mom. What?"

"I was out on the porch this morning real early, before sunrise, getting a breath of fresh air. That's a pretty time, Jeff. I usually feel real good in the morning about then, like I could start right in baking and weeding and doing the wash and ironing without even getting tired. Just sail through all of it, like I used to."

"You'll be feeling better soon, Mom," Jeff said. But it had been a long time since she'd felt good. Way before last Christmas, even, when she'd been going to have a baby and then something happened to it.

"Anyway," she went on in her soft voice, "I was standing by the railing, just breathing in the good air and watching the sky get lighter, and all of a sudden I saw it." She paused and looked at him, her eyes shining in the darkness.

"What?"

"Well, it was big and shiny silver and it had lights on it, and it was sort of cigar-shaped . . ."

"Oh Mom, that was just an airplane!"

"No, Jeff. It was different."

"Did it have red and green lights?"

"No, they were just sort of orangy red, and it whirled and wheeled up in the sky right over the road, and then it come down lower so I got a real good look at it."

"What did it look like? Did you see anybody on it?"

"It just looked like a big silver flying saucer, like you see pictures of. Nobody on it that I know of, but then you wouldn't know there was anybody on an airplane, either, until it landed and they got off."

"What did it do?" Jeff pictured the little green men from Mars, maybe, or Venus, who would be inside the silver ship. "Did it land?"

"No. I don't think so, anyway. It just come down over the house and then went up again, real fast, and whirled off over the woods so that I couldn't see it no more."

"But maybe it landed someplace. Maybe it's close by and we could go and see it."

His mother laughed softly. "I think somebody would have seen it by now if it come down. They'd have the sheriff and the newspaper and TV folks up here so fast you wouldn't know what happened."

"Are you going to tell them you saw it?"

She moved slightly and shook her head. "Everybody would think I'm plumb crazy if I told them. That's why I wouldn't tell no one but you, Jeff. It'll be our secret."

"But gee, Mom, maybe they wouldn't think you were crazy. Maybe they'd put you on television or something."

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"No, I don't think they'd believe me. Guess I'll just keep still about it."

"Can't I tell Mark?" Jeff thought of how impressed his friend would be. *He'd* never seen a flying saucer.

"Well . . . okay, but just Mark. And you tell him not to tell nobody, hear? Now you better turn over and close your eyes. It's late, and you'll be tired in the morning."

Jeff obediently turned over, face toward the window, and closed his eyes. Tomorrow he'd try to get up real early. Maybe he'd see the flying saucer, too.

* * *

In the control room of the T.T.C., Vahran examined the real-time chronometer. "I hope we've been more precise," he said. "What was it last time? A week early? A month?"

Captain Wolford shook his head. "Twenty-seven hours, according to our passenger. This time we may be an hour off, more or less. Not bad at all. Powers had a few minor adjustments made in the isochronal mechanisms. We've never had to be this exact before."

"This trip seems to be a first for a lot of things." Vahran was trying to hide his nervousness, his distaste for this whole matter, but he could hear the bitterness in his voice. He wouldn't be here if there hadn't been so much money involved.

Wolford looked at him sharply. "Compose yourself, Lieutenant. The Project Head explained all the ramifications to you himself when this trip was first planned, and you chose to come. Remarks like that in the passenger's hearing might cause problems later."

"I wouldn't say it where he could hear me," Vahran said.

"Well, look in and make sure he's strapped down, will you?"

Vahran went to the doorslit that widened as he touched it, and stepped through into the large central cabin. The passenger was sitting in the red glow, gazing raptly at the panorama of Arkansas countryside projected on the screens below and around him, his big head with its mat of thick, blond hair moving restlessly as he tried to catch every bit of the view. His broad, pale face seemed composed but Vahran knew he must be feeling a lot more than he was showing.

McCoy's calm manner must be habitual with him now. It should, after years spent assuring his patients that the symptoms of aging could indeed be reversed, that they could expect to live to be approximately two hundred years old, staying healthy and active the entire time. The "McCoy Method" had won him a Nobel prize. He was wealthy and famous, and Vahran knew this was why McCoy could do what no one had ever done before him . . . perhaps what no one should ever do.

"Strap yourself in for landing,

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Dr. McCoy," he said and went back through the doorslit into the control room.

Wolford looked up as Vahran entered. "Sit down and get yourself buckled in, Lieutenant, and try not to look like we're about to timegress into a freight train."

Vahran nodded slowly. "You trying to tell me *I'm* the only one who's worried, Captain?"

"Just do your job, Lieutenant," the captain said coolly.

"But you don't like this any better than I do."

Wolford shrugged. "McCoy convinced all the right people. A lot of people owe him favors; how can you turn down someone who's given you or your loved ones another hundred, hundred and twenty years of life? They have to satisfy McCoy, and *we* have to satisfy them."

Vahran stretched his stocky frame so that the chair cushioned itself into a reclining position against him. "By taking the chance that everybody else and *their* loved ones won't be there when we get back?"

Wolford's grey eyes hardened under his grey brows. "The plan is perfect. It won't fail unless you or I fail."

"But why weren't experiments ever made on this? Why weren't the paradoxes ever studied?"

"Probably because studying one would mean causing one. This kind of thing was never supposed to happen. Rules were set up."

"But it's happening now," Vahran said doggedly.

Wolford ignored him. "Prepare yourself for landing in . . ." he looked at a dial in front of him, ". . . thirty-six seconds."

And you're just as nervous about all this as I am, Vahran thought, following the captain's gaze to the control panel. *So many things could go wrong.* The date register showed that it was now October 10, 1976.

* * *

McCoy had expected some kind of shock from the landing, but there was none. The only sign that they were down came when the viewers that surrounded him went dark. The infrabeams had been turned off, the red light that had filled the room dimmed, and he sat blinking in the incandescence that replaced it.

He loosened the straps of the chair and stood up, stretching, forcibly restraining the impatience that urged him to burst from the capsule and race across the field to the old frame house that waited for him in the October mist. "Time enough," he told himself and smiled faintly at the words.

The doorslit widened and the Captain entered with Lt. Vahran close behind. The captain spoke briskly. "Are you ready?"

McCoy nodded.

"Then I'll just run through the caveats once more."

The lieutenant was looking

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scared, McCoy noticed, but then the lieutenant had looked scared the first time, too. He wondered briefly why his friend Greg Powers, the president of Project Anachron, had sent Vahran along on this second attempt. Either Vahran hadn't voiced his fear or he was the only man Powers could send. There weren't many chrononauts, McCoy knew. The project was still very young, very secret, and very risky, and it was limited to use by those with a serious purpose: archaeologists, historians . . . and McCoy.

Captain Wolford was talking. ". . . not one other person must be involved other than your subject. Even animals and insects should be avoided. Do not remove anything from the site, or move or damage anything while you are there. The utmost care in walking and bodily movement must be observed. Always walk on paved surfaces in preference to lawns, fields, dirt. Always remove any evidence of your presence that might be left, such as footprints, fingerprints, etcetera."

McCoy raised an impatient hand. "I think I remember everything, Captain."

Wolford nodded curtly. "All right then. Good luck, and we'll expect you back here within thirty minutes. We can't remain stationary longer than that."

So little time, McCoy thought as he went through the port of the time transport and jogged across the open field toward the road. But then there was always too little time, and at least this segment of it was his to re-use. Recycled time. How often he'd wished for that. Who hadn't? And now a tiny bit of it was his.

The sky was grey, the air heavy with a chill mist. He was on the road now, and as soon as he passed the woods he would see it, the house where he had been born and where he had slept last night, probably dreaming about the bike he wanted for his ninth birthday. But he would have left for school by now, and his father would be gone, if they had timed it exactly right. He would have liked to see himself as he was then. He would even have liked to see his father, but of course there was no way. His mother had to be alone.

When the initial miscalculation had brought him back here for the first time yesterday morning his mother must have been on the front porch, for she'd seen the T.T.C. A dim memory came of how she'd told him she'd seen a "flying saucer." In the years that followed he had come to believe she'd made up the story just to take his mind off the reality of their lives. Now he knew she had spoken the truth.

He was past the woods and the mist was lifting. He stopped on the road, looking across the expanse of dirt and pebbles and straggling grass, past the sad old pine tree where his father had always left the car, up the sagging wooden steps to the cavern of darkness under the

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weather-worn eaves of the porch, where his mother stood staring at him.

She wore that old brown chenille robe, but she looked younger than he remembered. Her face was a thin, delicate triangle under long, untidy blond hair. Her lips were pale, her eyes large and sad as they watched him, uncomprehending.

He had prepared himself for this moment a thousand times. She looked timid, embarrassed to be standing so disheveled before a stranger, and he knew he had to reassure her quickly or she would slip through the door before he could stop her.

He smiled and called out: "Mrs. McCoy, I have an important message for you," as he strode to the porch steps, pausing at the bottom to look up at her.

By then she already had one hand on the knob of the closed front door, the other clasping her robe together at her neck. "A message? For me? From who?"

His heart was pounding so loudly he was afraid she might hear it. "From Freda Anderson," he said breathlessly, remembering the name she would believe.

Sure enough, she let go of the doorknob and leaned over the porch rail.

"Is she sick, or what?"

"She's had another attack. She wants you to come right away."

"Oh, but I can't go like this. I'll have to change."

"No. Please. I . . . I have my car waiting down the road. We can be there in a few minutes without anyone seeing you. If you don't come now, it might be too late."

Her eyes grew doubtful and she grasped the housecoat more tightly. "Who are you?"

He wanted to tell her, and then run to her and hug her. He wanted that more than anything at this moment, but there would be no way to convince her. She wouldn't understand. "I'm Freda's brother. . . from Albany."

"Why, she never spoke of a brother to me!"

"Please Mrs. McCoy, believe me. I'm her brother, here on a visit. Freda asked me to come for you. I was the only one they could spare." He was forcing himself to stay calm, hiding the fury of his own desire to get her away from this place "It's urgent, Mrs. McCoy. She needs you."

She was convinced now, moving down the porch steps timidly but steadily, and she glanced back only once at the closed front door and the quiet house as she walked with him toward the road.

Jeff McCoy kept his hands from touching her. Now he had to do the rest of it. The hardest part, perhaps.

"How bad off is she?" his mother was asking.

"Pretty bad."

They were at the road now and she was looking anxiously around. "Where's your car?"

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He kept his voice light. "Just down a way."

"But where?" Her voice was rising with apprehension and suspicion.

"Just beyond the woods. I parked off the road in the field."

She stared up at him. "Why would you park so far away?"

She was stopping now, and his hands went out and grasped hers, pulling her toward him.

"Look at me," he said urgently. "Don't you know me?"

She tried to pull away. "What do you want? Let me go!"

This was all wrong. Clumsy. He hadn't meant it to go like this. "I'm not going to hurt you, Mom. It's all right."

She ignored the word and struggled, but there was no strength in her and she knew it.

"Please," Jeff said gently. "Look at my face. You recognize me, don't you?"

She shook her head and the rest of her body shook too.

He kept a firm hold on her wrists. "Here," he said, "the scar on my nose where Trixie bit me when I was seven. I have a birthmark on my left shoulderblade that looks like a rabbit's head. I contracted measles on the first day of kindergarten and you played the dulcimer for me and sang the old songs, trying to make me feel better."

He watched her emotions shift from disbelief to almost-recognition—before they clouded with fear.

"Let me go," she said quietly. "I don't know who you are or what you want. Let me go!" She squirmed convulsively to get away from him, but he held her.

"You don't understand now," he said, "and I can't blame you for that. But come with me, just a little way down the road, and I'll show you something that will make you understand."

She remained silent, helpless, so he let go one of her hands and put his arm around her, pulling her along the road with him, talking softly the while. "Don't be frightened by what you'll see. When you saw it yesterday you called it a 'flying saucer' but it's really a time transport capsule." He could feel a long shudder go through her body and wished he had brought the medication with him. She was so thin, so sick, and this tension wasn't going to help her condition. "There are some others with me. Don't be afraid of them. They're human beings. We've all come here to help you."

She was sobbing softly, tears streaming down her cheeks, and she seemed dazed.

"You're my mother," he said. "I wouldn't hurt you for anything in the world."

"Then let me go home."

Anger was rising in him, a desperate frustration with her needless fear. He hadn't hurt her. Surely she

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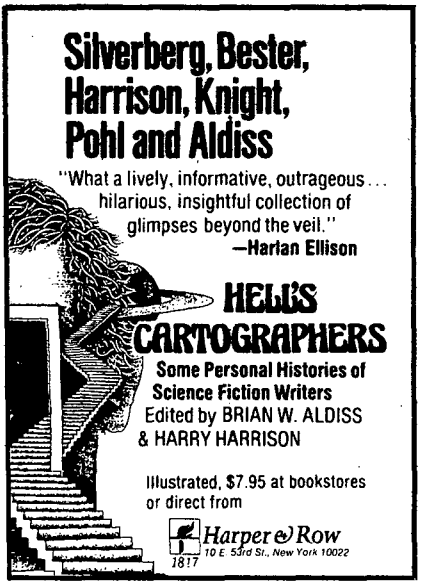
could sense his good intentions even if she couldn't seem to accept his resemblance to the son she knew. Was she too stupid to be curious? To at least find out what this mystery was all about? Somehow he had thought there would be a strong bond . . .recognition . . . between them the moment they met, but she was not as he remembered, and obviously she felt no kinship to him. And how do you talk to a memory? But then he considered why he was here and what it had taken to get him here, and he tried again, speaking gently.

"You can go home, Mom, if that's what you want. You can go right back home just as soon as I've explained things to you. On the transport. Look, it's over there." He pointed to the edge of the woods where the silver disk was just visible through the trees. When his mother saw it she struggled again, but he kept his arm firmly around her and one hand on her wrist so that she had to let him take her across the field. He was thankful that at least she wasn't screaming.

As soon as they reached the transport, the port opened, and McCoy led his mother through. She stopped struggling when she saw Wolford and Vahran waiting for them and leaned suddenly against Jeff as if for protection. He loosened his grasp on her wrist, but kept an arm around her still. "Mother, this is Captain Wolford and Lieutenant Vahran."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Wolford's ruddy face attempted a warm smile, but Vahran only nodded.

"In here, Mom," McCoy said, leading her to the doorslit of the inner cabin, pausing until it dilated sufficiently to admit both of them together. His mother stared as they went through and gasped as it closed behind them. McCoy led her to one of the chairs and she collapsed into it. He then found his kit, extracted what he wanted, and handed it to her. She held it listlessly on her open palm, barely glancing at it as she gazed bemusedly around the cabin at the darkened viewscreens, the army of meters, the softly glowing walls.

"Look at it," he told her, point-

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ing to the tranquillizer he had given her. It was shaped like a flower bud on a short stem, pale pink with light green petals. As it took warmth from her hand it opened into a frilly blossom that gave off a strong, sweet fragrance. In spite of her nervousness, she lifted the flower cautiously to her nose and sniffed it. She didn't notice when part of the 'stem' melted into her palm . . .

Thank God, McCoy thought. The gadget he had devised to sedate children and psychotics without force was proving invaluable again. He talked as he waited for the drug to relax her, knowing that there was little time left before they would have to return to the transfer point. "Now do you see?" he said. "There's nothing and nobody here to hurt you."

She held out her palm with the flower in it. "Is this what you want to show me? Magic tricks?"

"Of course not. That's not important. What *is* important is that you realize I'm your son."

She shook her head. "My son is Jeff, my only child. He's at school now."

"That's true," Jeff said, "but it's only partly true. I am Jeff, only I'm the grown-up Jeff. I come from the future. In my time it's the year 2009, and I'm forty-three years old." He touched her cheek. "Look at me. Can't you see I've only changed a little bit? I've only grown up, Mom."

She lifted her eyes and stared at him, and said nothing.

"In my present time there's a way to return to the past. That's what I've done. I've come back to ask you to go with me to my time . . . to the future."

Unexpectedly, she laughed, in the way she had when he had been very small and had told her his fantastic dreams. "That's some story, Mister," she said. "Wait until I tell Jeff about this. And we all thought you were little green men from Mars."

McCoy sighed. "I want you to come back to 2009 with me, Mom. I want to buy you a new house and make your life easy from now on. You need medical attention, and I can give you the best. You can live a long and happy life if you'll come with me now."

She shook her head slowly, still smiling. "Little green men, we thought, and here you look just like us."

There was a slight swooshing sound and the doorslit to the control room opened to admit Captain Wolford. He looked from one to the other and then spoke quietly. "Three minutes, Dr. McCoy."

McCoy nodded. "Come here for a moment, will you, Captain?"

Wolford stepped forward a few paces and stood waiting.

"Will you tell her, please, where we come from, and who we are?"

"Project Anachron," Wolford said. "Travel to the past."

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"And who am I?"

"Doctor Jeffrey McCoy."

"Thank you," McCoy said. "We can leave now, Captain."

His mother jumped up suddenly, visibly fighting the effects of the tranquilizer. "No! I've got to get home. You can't start this thing going until I get off!" She moved toward the doorslit to the outer passage, but McCoy stepped in front of her, blocking her way.

"You're coming with us, whether you want to or not," he said sternly. "You'll be glad you did, later." He nodded to the captain. "It's okay. I'll get her fastened into the chair."

Wolford stepped back through the doorslit.

"You lied to me!" his mother sobbed as McCoy pushed her gently into the chair and fastened the safety straps around her. "You lied! You said I could go home!"

"I'm sorry," he said.

"But Jeff needs me. I can't leave him."

McCoy finished with her straps and then reclined in his own chair next to hers. "It's all right, Mom. I went to live with your parents. Grandpa and Grandma were good to me. I was happy with them." He swung the chair around so he could see her face. She was very white but she was listening to him now, perhaps even believing him. He went on. "My father left us, you know. It was the same day—" he stopped, looked at her, and then continued. "It was a week before my birthday. That would be today . . . this morning. He didn't even wait to eat breakfast. Just got into the Ford and drove away."

"He'll be back." She was crying hard, her voice breaking.

"No, not this time. And so I went to live with Grandma and Grandpa. So you see, Mom, there's nothing for you to go back to. Nobody needs you there, but *I* want you *here*."

A red glow filled the room and a humming started, and now the viewers around them and under them were turning on like windows to the world outside, showing them the bleak trees, the rutted ground, the chill morning, and the uneven roof of the old house.

The woman struggled to a sitting position, the chair forming itself around her as she moved, and she watched the house receding below them until it was only a speck. Then she turned horrified eyes to McCoy.

"You're a liar! You have nothing to do with me or my son. You're a lying, rotten, stinking——"

He leaned over and grabbed the fist she was shaking at him, anger and disappointment loud in his voice. "Don't you know why I'm taking you with me? Don't you know why I've spent years planning for this moment? Can't you feel what's going to happen to you? Then let me tell you I've had to beg, to bribe, to toady and crawl, to

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plead and bargain with people I hate just to be able to come back here and save you. Are you too stupid to see how important this is to me, and to you, and to that little boy back there?" Suddenly he became conscious that he was hurting her hand and released it. But she would have to hear the rest now. He hadn't planned to tell her, ever, but he had to make her understand. He lowered his voice. "I did all that, Mother, to save your life—to give you a new life. That's why I'm not going to send you back there to die. Because you did die that day—today—October 10, 1976."

She was staring at him, eyes wide with disbelief. "What are you talking about?"

"I'm telling you that I'm saving your life! If you had left this transport and gone back to that house, you would have died in about five hours. And that's why we have to hurry; I want you in the hospital when your body fails."

She shook her head violently. "No!"

"Yes!" He wasn't angry any more. Now he was so close to her, now that he'd seen the old house again just as it had been on that last day of her life, the same feelings came flooding back to him and he spoke to her with all the heartache he had known then. "He got up that morning and started drinking again, and he was cussing and slapping you around until both of us were crying, and then he got into the car and left. I didn't want to go to school but you made me eat my mush and get on the bus. And when I got home it was raining, and you weren't waiting for me on the porch, but I thought it was because of the rain. I went into the kitchen, but you weren't there, and then I went into the bedroom. You were lying on the bed. I knew right away that . . . that you weren't alive. I don't remember how, but I got someone to help and they called an ambulance. The doctor said it would have happened whether I'd been there or not, because you were so sick. He called it 'cardiac arrest.' I didn't know then that that was just dog-Latin for 'the heart stopped beating'—but I always thought that if I'd been there with you I could have saved you somehow." He buried his face in his hands. "You never even owned a washing machine."

He could hear her low voice. "He's not a bad man. It's just so hard on him, the bad times and all . . ."

"He should have taken you to a doctor. He knew you'd been sick for a long time, but he wouldn't do even that much for you."

"No, honey. Don't." The woman reached out, and McCoy felt gentle hands stroking his hair.

He lifted his head and looked at her. "Then you do believe me? You know who I am?"

* * *

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There was a welcoming committee of one as the T.T.C. materialized in its home station. Vahran could see the tall figure of Greg Powers coming toward them as he and Wolford stood at the port. They exchanged brief greetings and then Wolford told him what had happened.

Powers nodded. "I hope it was over quickly," he said. "How's McCoy?"

"He's inside with the body. He's taking it pretty hard."

"Of course," Powers said. He patted Vahran's shoulder. "Thank you. It couldn't have been pleasant for either of you. Your bonus checks will be waiting the minute we finish up."

"When will that be?" Vahran asked.

"That depends on Jeff . . . how quickly I can convince him to get his mother's body back to her own time. Why don't you take a couple hours break and report back? I'll let you know then." He clapped Vahran on the shoulder again, and went into the transport.

Vahran and Wolford walked slowly through the garage-like building and turned into a hallway full of people who rushed blindly past, intent on their own errands amid the sounds of clicking autotypers and chiming phones.

"Well," Wolford said, "everything seems to be the same here in good old 2009. Feel better?"

Vahran nodded. "I felt better as

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soon as McCoy used the tranquillizer on her."

Wolford shrugged. "We put poison into every bit of medication he had with him, remember?"

"But I kept thinking . . . suppose he doesn't give her any? Suppose we'd had to slip an injection into her? Suppose he caught us at it?" Vahran ran the back of his hand across his forehead. "I don't know. I feel less like a murderer this way."

"We're not murderers," Wolford said flatly.

"We'll be debating that point for the rest of our lives, and you know it."

Wolford shook his head. "You can't murder someone who died thirty-four years ago."

Vahran wrinkled his forehead and followed the captain out of the building, into the sunshine.

* * *

They made the return trip to October 10, 1976 the next morning, arranging to arrive thirty minutes later than their previous departure. Together McCoy and Powers proceeded to carry the woman's body into the house to lay it on the bed in readiness for that younger Jeff's return.

As the transport's outer slit irised shut behind McCoy and Powers, Vahran turned to his Captain. "Did you hear what McCoy said—about the autopsy? *Did you hear?*" Vahran knew he sounded hysterical, but now that McCoy was out of the ship he had to speak.

Wolford eyed him warily. "What are you talking about?"

"Cardiac arrest; her heart just stopped beating. McCoy said it was just like that old-time sawbones had claimed—that it must have been Fate, that there was no discernable reason for her to have died, but that she died anyway." Vahran broke off, tried to get a grip on himself.

"So?" Wolford shrugged. "The poison short-circuits the autonomous nervous system for a few minutes, then disappears without a trace. Powers was thorough."

"Idiot!" Vahran was suddenly indifferent to the other's rank. "Can't you see? *There was no proximate cause of death.* Oh, sure, her lungs were rotten with tuberculosis and she suffered from pernicious anemia, but she would have lived for at least a year—barring our intervention.

"But she did die. Before we ever got involved. On October 10, 1976. Before we were even born . . ." Captain Wolford stopped speaking as he began to understand.

"That's right! She *always* died on October 10, 1976, before we were born. Because we always killed her."

Vahran's words were a cry of terror, and he saw that terror mirrored in Wolford's eyes, as together they stared into the abyss. ★

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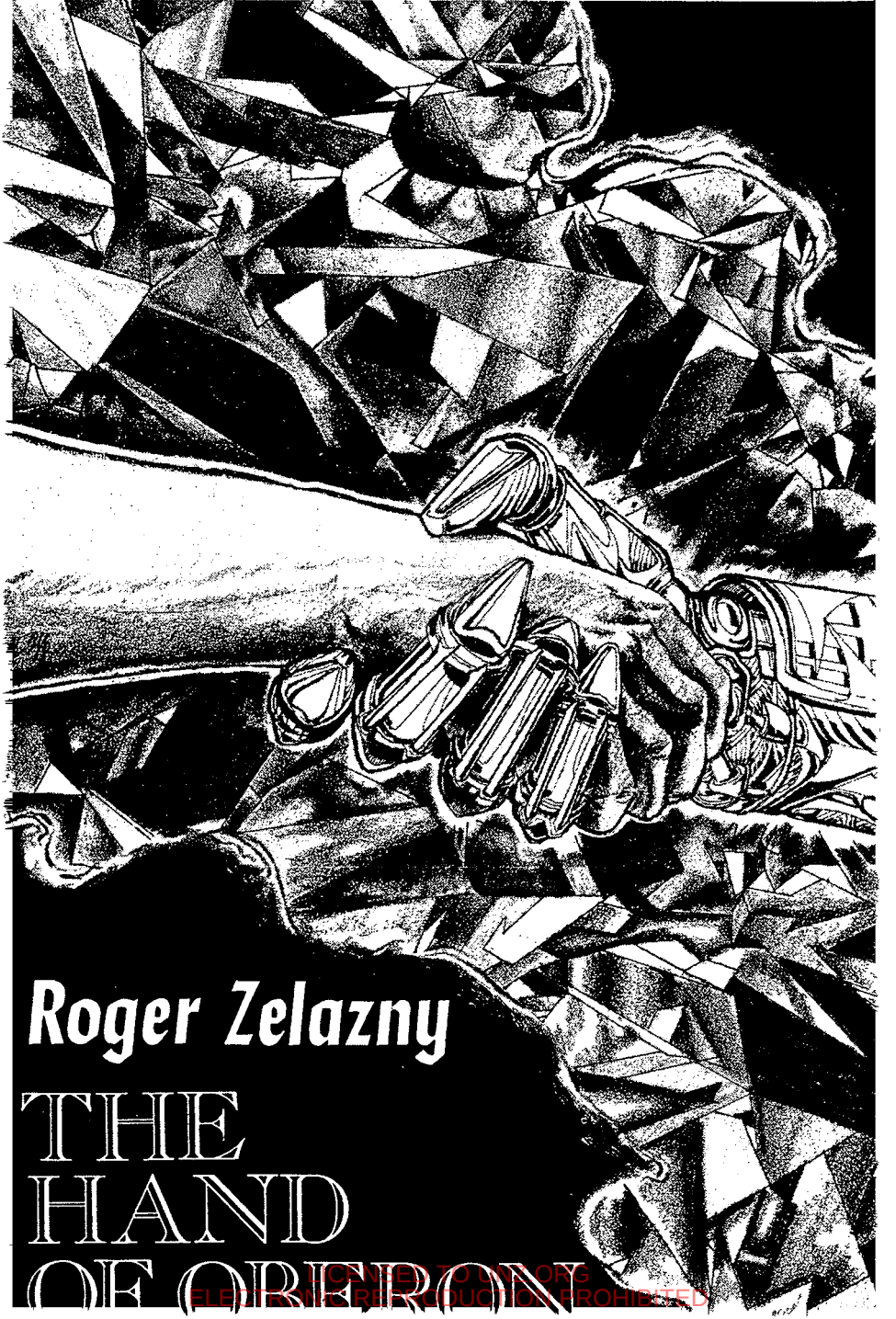

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Part III of III

WHAT HAS GONE BEFORE

Transported by one of Dworkin's Trumps to the verge of Chaos, I regarded an unsteady landscape beneath a sky split down the middle—half the sky was of night, with shifting stars; half, a riot of writhing colors. It seemed to rotate about a point directly overhead. Beyond the chasm beside which I stood, something hovered on a distant mount of black. A city? A citadel?

As I watched, I detected moving points of light passing along gauzy strands within the abyss. One such strand drifted near and a ghostly horseman moved along it, coming in my direction. He demanded my name and challenged me when I refused to supply it. We fought. He recognized my blade, Grayswandir, called me Corwin, and tried to back out. But it was too late. Both he and his horse burned as they were wounded and fell into the abyss.

Another horseman followed—human in appearance, mounted on a more mundane steed. He bore a crossbow with which he apparently intended to dispatch me. He too, however, recognized Grayswandir and changed his mind. He warned me away and departed.

I scouted the area quickly after that, mounting to a greater prominence from which I confirmed a suspicion that the black road passed this far and on out across the abyss to the dark place. I attempted to contact Random then, but he was in the midst of a hell-ride. Finally, I was able to raise Gérard and he trumped me back to Amber. There, I learned that eight days had gone by, rather than the few hours I had personally passed.

Brand, Gérard told me, had been asking for me. Benedict had returned from his journey wearing the arm I had brought back from Tir-na Nog'th. Random had done the surgery before continuing on in his search for his son Martin.

I went to see Brand, who had apparently been brooding in his quarters despite making a good recovery from his injury. He berated me for not keeping him up to date on affairs. I confronted him with Martin's Trump and my suspicions concerning it. He admitted both the authorship of the card and the stabbing of Martin. He protested, however, that this was prior to his change of heart/mind concerning the conspiracy to which he had been party. He then told me he had determined that Bleys was still living and was preparing for a new assault on Amber. He requested my cooperation in disposing of both Bleys and Fiona. I refused and he grew angry. He wanted particulars on Benedict's new arm, on my visit to Tir-na Nog'th and the identities of my companions when I had visited the primal Pattern. I let him know that Random had been with me when the damaged Trump had been located, just to keep him on edge, declined furnishing information on the rest and departed.

I had a quick meal then and rode down to the place where Ganelon and my troops were camped. Ganelon contacted me en route, via a set of Trumps he had recently acquired, and informed me that something had come up and that he would tell me more when I arrived. It turned out that Benedict was with him. Benedict had finally been convinced of Dara's ex-

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istence and had apparently accepted the possibility that she might be of his own blood. He wanted my recollections of her. After hearing them, he told me of Random's quest for his son, heard my account of my journey to the Courts of Chaos, expressed a desire to carry the battle to that place and borrowed the new Trump for purposes of personally reconnoitering it. He used his new hand perfectly.

I told Benedict that the damage to the Pattern might be the major cause of our current problems, and of the possibility that it could be repaired. He agreed not to attack the Courts of Chaos without first conferring with me, in return for my not fooling with the Pattern without telling him.

I was about to depart then, to return to the shadow Earth for the Jewel of Judgment, when Gérard contacted Benedict and had him bring him through on his Trump. Gérard then accused me of foul play back in Amber. I was the last person he knew of to see Brand, and Brand was now missing, his room a mess complete with bloodstains. I could not convince him of my innocence, and we fought. I was getting the worst of it when Ganelon stepped in and managed to beat Gérard unconscious.

I departed on my journey immediately after that, entering Arden and following the trail which took me west, then north, about the foot of Kolvir.

During the course of my ride, I heard a hunting horn followed by the baying of the stormhounds. It could only be my brother Julian. I fled, working some premature twistings of Shadow, but the pursuit continued. Only at the last possible moment did I realize that I was not the quarry. Julian was pursuing a manticora, which seemed to have been pursuing me. He and the hounds succeeded in dispatching it.

After that, we talked. He was pleased to know that he was no longer under suspicion for Brand's stabbing, less pleased to know that Brand had survived. He admitted he would have done it if he had had the opportunity. He then told me a different version of events leading up to and following my return. He acknowledged the existence of the two groups—himself, Caine and Eric opposing Bleys, Brand and Fiona—in the struggle for the throne. He even took personal responsibility for my blinding, as the only means he had seen to save my life. He indicated that Brand was the major villain in the piece, however, telling me then of his powers—powers which made him into something like a living Trump.

I told him of recent developments and of my search for the Jewel of Judgment. He opined that Brand could not summon such an item from Shadow, but would have to go after it personally. He sent me on my way then with something I'd never had from him before: his good wishes.

I hellrode to the shadow Earth and visited my old home there. It was being repaired for sale, and the compost heap in which I had hidden the Jewel was gone. I rode into town, to Bill Roth's place. He wanted the story I had promised him and I still hadn't the time to tell it. He phoned the contractor—Ed Wellen, a man I had once known—and learned that Ed had hauled the heap away himself, for personal use. We headed for Ed's place in a hurry then, because we also learned that a redheaded artist had been painting in that same field that day, a man

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who had also looked at the house earlier, a man who might have been Brand.

I risked contact with Gérard, who seemed somewhat placated, and persuaded him to see that the Patterns in Amber and Rebma were kept guarded from Brand.

Bill and I got to Ed's place quickly, began looking, soon realized that the Jewel was gone. Gérard got in contact about that time, saying that Brand had indeed shown up in the chamber of the Pattern, but seeing that it was guarded had departed.

Immediately after this, Fiona got in touch with me. I brought her through and she guided me through places of Shadow back toward the primal Pattern. On the way, she told me more about the accident. It had been Brand, not Bleys, who had shot out my tires. It was Bleys who had called the cops. I had dragged myself out of the wreck. I had been getting shock treatments in Porter, where Brand had had me committed, not for purposes of restoring my memories, but rather to destroy memories which had begun returning on their own. After I escaped, Brand had then tried to kill me because he didn't want me returning.

When we reached the place of the primal Pattern, Brand was already into it, the Jewel about his neck for purposes of attunement. I pursued him through the Pattern. Fighting under a handicap, because I could only let his blood fall in the dark area, so as not to damage the Pattern further, I used the Jewel he was wearing to summon a vortex like that which had destroyed Random's horse Iago. When he had me at a disadvantage and was about to press it, Brand's blade was struck by lightning and he realized what I had unleashed above him. Entering the black area, he exercised his powers to save himself just as the vortex descended.

I had no choice then but to complete the Pattern myself in order to get out. There is no turning back.

XII.

LATE AFTERNOON ON A MOUNTAIN: the westering sun shone full on the rocks to my left, tailored long shadows for those to the right; it filtered through the foliage about my tomb; it countered to some extent the chill winds of Kolvir. I released Random's hand and turned to regard the man who sat on the bench before the mausoleum.

It was the face of the youth on the pierced Trump, lines now drawn above the mouth, brow heavier, a general wariness in eye movement and set of jaw which had not been apparent on the card.

So I knew it before Random said, "This is my son Martin."

Martin rose as I approached him, clasped my hand, said, "Uncle Corwin." His expression changed but slightly as he said it. He scrutinized me.

He was several inches taller than Random, but of the same light build. His chin and cheekbones had the same general cut to them, his hair was of a similar texture.

I smiled.

"You have been away a long while," I said. "So was I."

He nodded.

"But I have never really been in Amber proper," he said. "I grew up in Rebma—and other places."

"Then let me welcome you,

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nephew. You come at an interesting time. Random must have told you about it."

"Yes," he said. "That is why I asked to meet you here, rather than there."

I glanced at Random.

"The last uncle he met was Brand," Random said, "and under very nasty circumstances. Do you blame him?"

"Hardly. I ran into him myself a bit earlier. Can't say it was the most rewarding encounter."

"Ran into him?" said Random. "You've lost me."

"He has left Amber and he has the Jewel of Judgment with him. If I had known earlier what I know now, he would still be in the tower. He is our man, and he is very dangerous."

Random nodded.

"I know," he said. "Martin confirmed all our suspicions on the stabbing—and it was Brand. But what is this about the Jewel?"

"He beat me to the place where I had left it on the shadow Earth. He has to walk the Pattern with it and project himself through it, though, to attune it to his use. I just stopped him from doing that on the primal Pattern in the real Amber. He escaped, however. I was just over the hill with Gérard, sending a squad of guards through to Fiona in that place, to prevent his returning and trying again. Our own Pattern and that in Rebma are also under guard because of him."

"Why does he want so badly to attune it? So he can raise a few storms? Hell, he could take a walk in Shadow and make all the weather he wants."

"A person attuned to the Jewel could use it to erase the Pattern."

"Oh? What happens then?"

"The world as we know it comes to an end."

"Oh," Random said again. Then, "How the hell do you know?"

"It is a long story and I haven't the time, but I had it from Dworkin and I believe that much of what he said is true."

"He's still around?"

"Later," I said.

"Okay. But Brand would have to be mad to do something like that."

I nodded.

"I believe he thinks he could then cast a new Pattern, redesign the universe with himself as chief executive."

"Could this be done?"

"Theoretically, perhaps. But even Dworkin has certain doubts that the feat could be repeated effectively now. The combination of factors was unique. —Yes, I believe Brand is somewhat mad. Looking back over the years, recalling his personality changes, his cycles of moods, it seems there was something of a schizoid pattern there. I do not know whether the deal he made with the enemy pushed him over the edge or not. It does not really matter. I wish he were back in his tower. I wish Gérard were a worse physician."

"Do you know who stabbed him?"

"Fiona. You can get the story from her, though."

He leaned against my epitaph and shook his head.

"Brand," he said. "Damn him. Any one of us might have killed

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him on a number of occasions—in the old days. Just when he would get you mad enough, though, he would change. After awhile, you would get to thinking he wasn't such a bad guy after all. Too bad he didn't push one of us just a little harder at the wrong time. . .''

''Then I take it he is now fair game?'' said Martin.

I looked at him. The muscles in his jaws had tightened and his eyes were narrowed. For a moment, all of our faces fled across his, like a riffling of the family cards. All of our egoism, hatred, envy, pride and abuse seemed to flow by in that instant—and he had not even set foot in Amber yet. Something snapped inside me and I reached out and seized him by the shoulders.

''You have good reason to hate him,'' I said, ''and the answer to your question is 'yes'. The hunting season is open. I see no way to deal with him other than to destroy him. I hated him myself for so long as he remained an abstraction. But—now—it is different. Yes, he must be killed. But do not let that hatred be your baptism into our company. There has been too much of it among us. I look at your face—I don't know. . . I am sorry, Martin. Too much is going on right now. You are young. I have seen more things. Some of them bother me—differently. That's all.''

I released my grip and stepped back.

''Tell me about yourself,'' I said.

''I was afraid of Amber for a long while,'' he began, ''and I guess that I still am. Ever since he attacked me, I have been wondering whether Brand might catch up with me again. I have been looking over my shoulder for years. I have been afraid of all of you, I suppose. I knew most of you as pictures on cards—with bad reputations attached. I told Random—Dad—that I did not want to meet you all at once, and he suggested that I see you first. Neither of us realized at the time that you would be particularly interested in certain things that I know. After I mentioned them though, Dad said I had to see you as soon as possible. He has been telling me all about what has been going on and—you see, I know something about it.''

''I had a feeling that you might—when a certain name cropped up not too long ago.''

''The Tecys?'' Random said.

''The same.''

''It is difficult, deciding where to start. . .'' Martin said.

''I know that you grew up in Rebma, walked the Pattern and then used your power over Shadow to visit Benedict in Avalon,'' I said. ''Benedict told you more about Amber and Shadow, taught you the use of the Trumps, coached you in weaponry. Later, you departed to walk in Shadow by yourself. And I know what Brand did to you. That is the sum of my knowledge.''

He nodded, stared off into the west.

''After I left Benedict's, I traveled for years in Shadow,'' he said. ''Those were the happiest times I have known. Adventure, excitement, new things to see, to do. . . In the back of my mind, I always had it that one day when I was smarter and tougher—more experienced—I would journey to

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Amber and meet my other relatives. Then Brand caught up with me. I was camped on a little hillside, just resting from a long ride and taking my lunch, on my way to visit my friends the Tecys. I had known them, through Benedict, for some time. Brand contacted me then. I had reached Benedict with his Trump, when he was teaching me how to use them, and other times when I had traveled. He had even transported me through occasionally, so I knew what it felt like, knew what it was all about. This felt the same way, and for a moment I thought that somehow it was Benedict calling me. But no. It was Brand—I recognized him from his picture in the deck. He was standing in the midst of what seemed to be the Pattern. I was curious. I did not know how he had reached me. So far as I knew, there was no Trump for me. He talked for a minute—I forget what he said—and when everything was firm and clear, he—he stabbed me. I pushed him and pulled away then. He held the contact somehow. It was hard for me to break it—and when I did, he tried to reach me again. But I was able to block him. Benedict had taught me that. He tried again, several times, but I kept blocking. Finally, he stopped. I was near to the Tecys. I managed to get onto my horse and make it to their place. I thought I was going to die, because I had never been hurt that badly before. But after a time, I began to recover. Then I grew afraid once again, afraid that Brand would find me and finish what he had begun."

"Why didn't you contact Benedict," I asked him, "and tell him what had happened, tell him of your fears?"

"I thought of that," he said, "and I also thought of the possibility that Brand believed he had succeeded, that I was indeed dead. I did not know what sort of power struggle was going on in Amber, but I decided that the attempt on my life was probably part of such a thing. Benedict had told me enough about the family that this was one of the first things to come to mind. So I decided that perhaps it would be better to remain dead. I left the Tecys before I was completely recovered, and rode off to lose myself in Shadow.

"I happened upon a strange thing then," he continued, "a thing I had never before encountered, but which now seemed virtually omnipresent: In nearly all of the shadows through which I passed, there was a peculiar black road existing in some form or other. I did not understand it, but since it was the only thing I had come across which seemed to traverse Shadow itself, my curiosity was aroused. I resolved to follow it and learn more about it. It was dangerous. I learned very quickly not to tread the thing. Strange shapes seemed to travel it at night. Natural creatures which ventured upon it sickened and died. So I was careful. I went no nearer than was necessary to keep it in sight. I followed it through many places. I quickly learned that everywhere it ran there was death, desolation or trouble nearby. I did not know what to make of it.

"I was still weak from my wound," he went on, "and I made

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the mistake of pressing myself, of riding too far, too fast, in a day's time. That evening, I fell ill and I lay shivering in my blanket through the night and much of the next day. I was into and out of delirium during this time, so I do not know exactly when she appeared. She seemed like part of my dream much of the while. A young girl. Pretty. She took care of me while I recovered. Her name was Dara. We talked interminably. It was very pleasant. Having someone to talk with like that. . .I must have told her my whole life story. Then she told me something of herself. She was not a native of the area in which I had collapsed. She said that she had traveled there through Shadow. She could not yet walk through it as we do, though she felt she could learn to do this, as she claimed descent from the House of Amber through Benedict. In fact, she wanted very badly to learn how it was done. Her means of travel then was the black road itself. She was immune to its noxious effects, she said, because she was also related to the dwellers at its farther end, in the Courts of Chaos. She wanted to learn our ways though, so I did my best to instruct her in those things that I did know. I told her of the Pattern, even sketched it for her. I showed her my Trumps—Benedict had given me a deck—to show her the appearance of her other relatives. She was particularly interested in yours."

"I begin to understand," I said. "Go on."

"She told me that Amber, in the fullness of its corruption and presumption, had upset a kind of metaphysical balance between itself and the Courts of Chaos. Her people now had the job of redressing the matter by laying waste to Amber. Their own place is not a shadow of Amber, but a solid entity in its own right. In the meantime, all of the intervening shadows are suffering because of the black road. My knowledge of Amber being what it was, I could only listen. At first, I accepted everything that she said. Brand, to me, certainly fit her description of evil in Amber. But when I mentioned him, she said no. He was some sort of hero back where she hied from. She was uncertain as to the particulars, but it did not trouble her all that much. It was then that I realized how oversure she seemed about everything—there was a ring of the fanatic when she talked. Almost unwillingly, I found myself trying to defend Amber. I thought of Llewella and of Benedict—and of Gérard, whom I had met a few times. She was eager to learn of Benedict, I discovered. That proved the soft spot in her armor. Here I could speak with some knowledge, and here she was willing to believe the good things I had to say. So, I do not know what the ultimate effect of all this talk was, except that she seemed somewhat less sure of herself near the end. . ."

"The end?" I said. "What do you mean? How long was she with you?"

"Almost a week," he replied. "She had said she would take care of me until I was recovered, and she did. Actually, she remained several days longer. She said that was just to be sure, but I think it

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was really that she wanted to continue our conversations. Finally though, she said that she had to be moving on. I asked her to stay with me, but she said no. I offered to go with her, but she said no to that, too. She must have realized that I planned to follow her then, because she slipped away during the night. I could not ride the black road, and I had no idea what shadow she would travel to next on her way to Amber. When I awoke in the morning and realized she had gone, I thought for a time of visiting Amber myself. But I was still afraid. Perhaps some of the things she had said had reinforced my own fears. Whatever, I decided to remain in Shadow. And so I traveled on, seeing things, trying to learn things—until Random found me and told me he wanted me to come home. He brought me here first though, to meet you, because he wanted you to hear my story before any of the others. He said that you knew Dara, that you wanted to learn more about her. I hope that I have helped."

"Yes," I said. "Thank you."

"I understand that she did finally walk the Pattern."

"Yes, she succeeded in that."

"And afterwards delcared herself an enemy of Amber."

"That, too."

"I hope," he said, "that she comes to no harm by all this. She was kind to me."

"She seems quite able to take care of herself," I said. "But. . . Yes, she is a likable girl. I cannot promise you anything concerning her safety, because I still know so little about her, so little of her part in everything that is going on. Yet,

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what you have told me has been helpful. It makes her someone I would still like to grant doubt's benefit, as far as I can."

He smiled.

"I am glad to hear that."

I shrugged.

"What are you going to do now?" I asked.

"I am taking him to meet Vialle," Ramon said, "and then the others, as time and opportunity permit. Unless, of course, something new has developed and you need me now."

"There have been new developments," I said, "but I do not really need you now. I had better bring you up to date, though. I still have a little time."

As I filled Random in on events since his departure, I thought about Martin. He was still an unknown quantity so far as I was concerned. His story might be perfectly true. In fact, I felt that it was. On the other hand, I had a feeling that it was not complete, that he was intentionally leaving something out. Maybe something harmless. Then again, maybe not. He had no real reason to love us. Quite the contrary. And Random could be bringing home a Trojan Horse. Probably though, it was nothing like that. It is just that I never trust anyone if there is an alternative available.

Still, nothing that I was telling Random could really be used against us, and I strongly doubted that Martin could do us much damage if that was his intention. No, more likely he was being as cagey as the rest of us, and for pretty much the same reasons: fear and self-preservation. On a sudden inspiration, I asked him, "Did you ever run into Dara again after that?"

He flushed.

"No," he said, too quickly. "Just that time. That's all."

"I see," I said, and Random was too good a poker player not to have noticed; so I had just bought us a piece of instant insurance at the small price of putting a father on guard against his long-lost son.

I quickly shifted our talk back to Brand. It was while we were comparing notes on psychopathology that I felt the tiny tingle and the sense of presence which heralds a Trump contact. I raised my hand and turned aside.

In a moment the contact was clear and Ganelon and I regarded one another.

"Corwin," he said, "I decided it was time to check. By now, you have the Jewel, Brand has the Jewel or you are both still looking. Which one is it?"

"Brand has the Jewel," I said.

"More's the pity," he said. "Tell me about it."

So I did.

"Then Gérard had the story right," he said.

"He's already told you all this?"

"Not in such detail," Ganelon replied, "and I wanted to be sure I was getting it straight. I just finished speaking with him." He glanced upward. "It would seem you had best be moving then, if my memories of moonrise serve me right."

I nodded.

"Yes, I will be heading for the stairway shortly. It is not all that far from here."

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"Good. Now here is what you must be ready to do—"

"I know what I have to do," I said. "I have to get up to Tir-na Nog'th before Brand does and block his way to the Pattern. Failing that, I have to chase him through it again."

"That is not the way to go about it," he said.

"You have a better idea?"

"Yes, I do. You have your Trumps with you?"

"Yes."

"Good. First, you would not be able to get up there in time to block his way to the Pattern—"

"Why not?"

"You have to make the ascension, then you have to walk to the palace and make your way down to the Pattern. That takes time, even in Tir-na Nog'th—especially in Tir-na Nog'th, where time tends to play tricks anyway. For all you know, you may have a hidden death-wish slowing you down. I don't know. Whatever the case, he would have commenced walking the Pattern by the time you arrived. It may well be that he would be too far into it for you to reach him this time."

"He will probably be tired. That should slow him some."

"No. Put yourself in his place. If you were Brand, wouldn't you have headed for some shadow where the time-flow was different? Instead of an afternoon, he could well have taken several days to rest up for this evening's ordeal. It is safest to assume that he will be in good shape."

"You are right," I said. "I can't count on it. Okay. An alternative I had entertained but would rather not try if it could be avoided, would be to kill him at a distance. Take along a crossbow or one of our rifles and simply shoot him in the midst of the Pattern. The thing that bothers me about it is the effect of our blood on the Pattern. It may be that it is only the primal Pattern that suffers from it, but I don't know."

"That's right. You do not know," he said. "Also, I would not want you to rely on normal weapons up there. That is a peculiar place. You said yourself it is like a strange piece of Shadow drifting in the sky. While you figured how to make a rifle fire in Amber, the same rules may not apply up there."

"It is a risk," I acknowledged.

"As for the crossbow— Supposing a sudden gust of wind deflected the bolt each time you shot one?"

"I am afraid I do not follw you."

"The Jewel. He walked it partway through the primal Pattern, and he has had some time to experiment with it since then. Do you think it possible that he is partly attuned to it now?"

"I do not know. I am not at all that sure how the process works."

"I just wanted to point out that if it does work that way, he may be able to use it to defend himself. The Jewel may even have other properties you are not aware of. So what I am saying is that I would not want you to count on being able to kill him at a distance. And I would not even want you to rely on being able to pull the trick you did with the Jewel again—not if he may have gained some measure of control over it."

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"You do make things look a little bleaker than I had them."

"But possibly more realistic," he said.

"Conceded. Go on. You said you had a plan."

"That is correct. My thinking is that Brand must not be allowed to reach the Pattern at all, that once he sets foot upon it the probability of disaster goes way up."

"And you do not think I can get there in time to block him?"

"Not if he can really transport himself around almost instantaneously while you have to take a long walk. My bet is that he is just waiting for moonrise, and as soon as the city takes form he will be inside, right next to the Pattern."

"I see the point, but not the answer."

"The answer is that you are not going to set foot in Tir-na Nog'th tonight."

"Hold on a minute!"

"Hold on, hell! You imported a master strategist, you'd better listen to what he has to say."

"Okay, I am listening."

"You have agreed that you probably cannot reach the place in time. But someone else can."

"Who and how?"

"All right. I have been in touch with Benedict. He has returned. At this moment, he is in Amber, down in the chamber of the Pattern. By now, he should have finished walking it and be standing there at its center, waiting. You proceed to the foot of the stair to the sky city. There you await the rising of the moon. As soon as Tir-na Nog'th takes form, you will contact Benedict via his Trump. You tell him that all is ready, and he will use the power of the Pattern in Amber to transport himself to the place of the Pattern in Tir-na Nog'th. No matter how fast Brand travels, he cannot gain much on that."

"I see the advantages," I said. "That is the fastest way to get a man up there and Benedict is certainly a good man. He should have no trouble dealing with Brand."

"Do you really think Brand will make no other preparations?" Ganelon said. "From everything I've heard about the man, he's smart even if he is daft. He just may anticipate something like this."

"Possibly. Any idea what he might do?"

He made a sweeping gesture with one hand, slapped his neck and smiled.

"A bug," he said. "Pardon me. Pesky little things."

"You still think—"

"I think you had better remain in contact with Benedict the entire time he is up there, that is what I think. If Brand gets the upper hand, you may need to pull Benedict back immediately to save his life."

"Of course. But then—"

"But then we would have lost a round. Admitted. But not the game. Even with the Jewel fully attuned, he would have to get to the primal Pattern to do his real damage with it—and you have that under guard."

"Yes," I said. "You seem to have everything figured. You surprised me, moving so fast."

"I've had a lot of time on my hands recently, which can be a bad thing unless you use it for thinking. So I did. What I think now is that

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you had best move fast. The day isn't getting any longer."

"Agreed," I said. "Thanks for the good counsel."

"Save your thanks till we see what comes of it," he said, and then he broke the contact.

"That one sounded important," Random said. "What's up?"

"Appropriate question," I answered, "but I am all out of time now. You will have to wait till morning for the story."

"Is there anything I can do to help?"

"As a matter of fact," I said, "yes, if you'll either ride double or go back to Amber on a Trump. I need Star."

"Sure," Random said. "No trouble. Is that all?"

"Yes. Haste is all."

We moved toward the horses.

I patted Star a few times and then mounted.

"We'll see you in Amber," Random said. "Good luck."

"In Amber," I said. "Thanks."

I turned and headed toward the place of the stairway, treading my tomb's lengthening shadow eastward.

XIII.

On the highest ridge of Kolvir there is a formation which resembles three steps. I sat on the lowest of these and waited for more to occur above me. It takes night and moonlight to do this, so half of the requirements had been met.

There were clouds to the west and northeast. I was leary of those clouds. If they massed sufficiently to block all moonlight, Tir-na Nog'th faded back to nothingness. This was one reason why it was always advisable to have a backup man on the ground, to trump you to safety should the city vanish about you.

The sky overhead was clear, however, and filled with familiar stars. When the moon came up and its light fell upon the stone on which I rested, the stairway in the sky would come into being, sweeping upward to a great height, taking its way to Tir-na Nog'th, the image of Amber that rode the night's middle air.

I was weary. Too much had occurred in too brief a time. Suddenly to be at rest, to remove my boots and rub my feet, to lean back and rest my head, even against stone, was a luxury, a pure animal plea-

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sure. I drew my cloak together before me against the growing chill. A hot bath, a full meal, a bed would be very good things. But these assumed an almost mythic quality from that vantage. It was more than sufficient simply to rest as I was, to let my thoughts move more slowly, drifting, spectator-like, back over the day's happenings.

So much. . . But now, at least, I had some answers to some of my questions. Not all of them, certainly. But enough to slake my mind's thirst for the moment. . . I now had some idea as to what had been going on during my absence, a better understanding of what was happening now, a knowledge of some of the things that had to be done, of what *I* had to do. . . And I felt, somehow, that I knew more than I realized, consciously, that I already possessed pieces that would fit the growing picture before me, if I were only to jiggle them, flip them, rotate them properly. The pace of recent events, particularly today's, had not allowed me a moment's reflection. Now, though, some of the pieces seemed to be turning at odd angles. . .

I was distracted by a stirring above my shoulder, a tiny effect of brightening in the higher air. Turning, then standing, I regarded the horizon. A preliminary glow had occurred out over the sea at the point where the moon would ascend. As I watched, a minute arc of light came into view. The clouds had shifted slightly, also, though not enough to cause concern. I glanced up then, but the overhead phenomenon had not yet begun. I withdrew my Trumps, however, riffled them and cut out Benedict's.

Lethargy forgotten, I stared, watching the moon expand above the water, casting a trail of light over the waves. A faint form was suddenly hovering on the threshold of visibility high overhead. As the light grew, a spark limned it here and there. The first lines, faint as spiderwebbing, appeared above the rock. I studied Benedict's card, I reached for contact. . .

His cold image came alive. I saw him in the chamber of the Pattern, standing at the design's center. A lighted lantern glowed beside his left foot. He became aware of my presence.

"Corwin," he said, "is it time?"

"Not quite," I told him. "The moon is rising. The city is just beginning to take form. So it will only be a little longer. I wanted to be certain you were ready."

"I am ready," he said.

"It is good that you came back when you did. Did you learn anything of interest?"

"Ganelon called me back," he said, "as soon as he learned what had happened. His plan seemed a good one, which is why I am here. As for the Courts of Chaos, yes. I believe I have learned a few things—"

"A moment," I said.

The moonbeam strands had assumed a more tangible appearance. The city overhead was now clear in outline. The stairway was visible in its entirety, though fainter in some places than in others. I stretched forth my hand, above the second stair, the third. . .

Cool, soft, I encountered the fourth stair. It seemed to give

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somewhat beneath my push, however.

"Almost," I said to Benedict. "I am going to try the stair. Be ready."

He nodded.

I mounted the stone stairs, one, two, three. I raised my foot then and lowered it upon the fourth, ghostly one. It yielded gently to my weight. I was afraid to raise my other foot, so I waited, watching the moon. I breathed the cool air as the brightness increased, as the path in the waters widened. Glancing upward, I saw Tir-na Nog'th lose something of its transparency. The stars behind it grew dimmer. As this occurred, the stair became firmer beneath my foot. All resiliency went out of it. I felt that it might bear my full weight. Casting my eyes along its length, I now saw it in its entirety, here translucent, there transparent, sparkling, but continuous all the way up to the silent city that drifted above the sea. I raised my other foot and stood on the fourth stair. If I'd the mind, a few more steps would send me along that celestial escalator into the place of dreams made real, walking neuroses and dubious prophecy, into a moonlit city of ambiguous wish-fulfillment, twisted time and pallid beauty. I stepped back down and glanced at the moon, now balanced on the world's wet rim. I regarded Benedict's Trump in its silvery glow.

"The stair is solid, the moon is up," I said.

"All right. I am going."

I watched him there at the center of the Pattern. He raised the lantern in his left hand and for a moment stood unmoving. An instant later he was gone, and so was the Pattern. Another instant, and he stood within a similar chamber, this time outside the Pattern, next to the point where it begins. He raised the lantern high and looked all around the room. He was alone.

He turned, walked to the wall, moved along it, set the lantern there. His shadow stretched toward the Pattern, changed shape as he turned on his heel, moved back to his first position.

This Pattern, I noted, glowed with a paler light than the one in Amber—silvery white, without the hint of blue with which I was familiar. Its configuration was the same, but the ghost city played strange tricks with perspective. There were distortions—narrowings, widenings—which seemed to shift for no particular reason across its surface, as though I viewed the entire tableau through an irregular lens rather than Benedict's Trump.

I retreated down the stair, settled once again on the lowest step. I continued to observe.

Benedict loosened his blade in its scabbard.

"You know about the possible effect of blood on the Pattern?" I asked.

"Yes. Ganelon told me."

"Did you ever suspect—any of this?"

"I never trusted Brand," he told me.

"What of your journey to the Courts of Chaos? What did you learn?"

"Later, Corwin. He could come any time now."

"I hope no distracting visions

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show up," I said, recalling my own journey to Tir-na Nog'th and his own part in my final adventure there.

He shrugged.

"One gives them power by paying them heed. My attention is reserved for one matter tonight."

He turned through a full circle, regarding every part of the chamber, halted when he had finished.

"I wonder if he knows you are there?" I said.

"Perhaps. It does not matter."

I nodded. If Brand did not show up, we had gained a day. The guards would ward the other Patterns, Fiona would have a chance to demonstrate her own skill in matters arcane by locating Brand for us. We would then pursue him. She and Bleys had been able to stop him once before. Could she do it alone now? Or would we have to find Bleys and try to convince him to help? Had Brand found Bleys? What the hell did Brand want that kind of power for anyhow? A desire for the throne I could understand. Yet. . . The man was mad, I leave it at that. Too bad, but that's the way it was. Heredity or environment? I wondered wryly. We were all of us, to some degree, mad after his fashion. To be honest, it had to be a form of madness, to have so much and to strive so bitterly for just a little more, for a bit of an edge over the others. He carried this tendency to its extreme, that is all. He was a caricature of this mania in all of us. In this sense, did it really matter which of us was the traitor?

Yes, it did. He was the one who had acted. Mad or not, he had gone too far. He had done things Eric, Julian and I would not have done. Bleys and Fiona had finally backed away from his thickening plot. Gérard and Benedict were a notch above the rest of us—moral, mature, whatever—for they had exempted themselves from the zero-sum power game. Random had changed, quite a bit, in recent years. Could it be that the children of the unicorn took ages in which to mature, that it was slowly happening to the rest of us but had somehow passed Brand by? Or could it be that by his actions Brand was causing it in the rest of us? Like most such questions, the benefit of these was in the asking, not the answering. We were enough like Brand that I knew a particular species of fear nothing else could so provoke. But yes, it did matter. Whatever the reason, he was the one who had acted.

The moon was higher now, its vision superimposed upon my inward viewing of the chamber of the Pattern. The clouds continued to shift, to boil nearer the moon. I thought of advising Benedict, but it would serve no other end than distraction. Above me, Tir-na Nog'th rode like some supernatural ark upon the seas of night.

And suddenly Brand was there.

Reflexively, my hand went to Grayswandir's hilt, despite the fact that a part of me realized from the very first that he stood across the Pattern from Benedict in a dark chamber high in the sky.

My hand fell again. Benedict had become aware of the intruding presence immediately, and he turned to face him. He made no move toward

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his weapon, but simply stared across the Pattern at our brother.

My earliest fear had been that Brand would contrive to arrive directly behind Benedict and stab him in the back. I would not have tried that though, because even in death Benedict's reflexes might have been sufficient to dispatch his assailant. Apparently, Brand wasn't that crazy either.

Brand smiled.

"Benedict," he said. "Fancy. . . You. . . Here."

The Jewel of Judgment hung fiery upon his breast.

"Brand," Benedict said, "don't try it."

Still smiling, Brand unclasped his swordbelt and let his weapon fall to the floor. When the echoes died, he said, "I am not a fool, Benedict. The man hasn't been born who can go up against you with a blade."

"I don't need the blade, Brand."

Brand began walking, slowly, about the edge of the Pattern.

"Yet you wear it as a servant of the throne, when you could have been king."

"That has never been high on my list of ambitions."

"That is right." He paused, only partway about the Pattern. "Loyal, self-effacing. You have not changed at all. Pity Dad conditioned you so well. You could have gone so much further."

"I have everything that I want," Benedict said.

". . . .To have been stifled, cut off, so early."

"You cannot talk your way past me either, Brand. Do not make me hurt you."

The smile still on his face, Brand began moving again, slowly. What was it he was trying to do? I could not figure his strategy.

"You know I can do certain things the others cannot," Brand said. "If there is anything at all that you want and think that you cannot have, now is your chance to name it and learn how wrong you were. I have learned things you would scarcely believe."

Benedict smiled one of his rare smiles.

"You have chosen the wrong line," he said. "I can walk to anything that I want."

"Shadows!" Brand snorted, halting again. "Any of the others can clutch a phantom! I am talking of reality! Amber! Power! Chaos! Not daydreams made solid! Not second-best!"

"If I had wanted more than I have, I knew what to do. I did not do it."

Brand laughed, began walking again. He had come a quarter of the way about the Pattern's periphery. The Jewel burned more brightly. His voice rang.

"You are a fool, to wear your chains willingly! But if things do not call out to you to possess them and if power holds no attraction, what of knowledge? I learned the last of Dworkin's lore. I have gone on since then and paid dark prices for greater insight into the workings of the universe. This you could have without that pricetag."

"There would be a price," Benedict said, "one that I will not pay."

Brand shook his head and tossed his hair. The image of the Pattern wavered for a moment then, as a

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wisp of cloud crossed the moon. Tir-na Nog'th faded slightly, returned to normal focus.

"You mean it, you really mean it," Brand said, apparently not aware of the moment of fading. "I shan't test you further then. I had to try." He halted again, staring. "You are too good a man to waste yourself on that mess in Amber, defending something that is obviously falling apart. I am going to win, Benedict. I am going to erase Amber and build it anew. I am going to rub out the old Pattern and draw my own. You can be with me. I want you on my side. I am going to raise up a perfect world, one with more direct access to and from Shadow. I am going to merge Amber with the Courts of Chaos. I am going to extend this realm directly through all of Shadow. You will command our legions, the mightiest military forces ever assembled. You—"

"If your new world would be as perfect as you say, Brand, there would be no need for legions. If, on the other hand, it is to reflect the mind of its creator, then I see it as something less than an improvement over the present state of affairs. Thank you for your offer, but I hold with the Amber which already exists."

"You are a fool, Benedict. A well-meaning one, but a fool nevertheless."

He began to move again, casually. He was within forty feet of Benedict. Thirty. . . He kept moving. He finally paused about twenty feet away, hooked his thumbs behind his belt and simply stared. Benedict met his gaze. I checked the clouds again. A long mass of them continued a moonward slide. I could pull Benedict out at any time, though. It was hardly worth disturbing him at the moment.

"Why don't you come and cut me down then?" Brand finally said. "Unarmed as I am, it should not be difficult. The fact that the same blood flows in both our veins makes no difference, does it? What are you waiting for?"

"I already told you that I do not wish to hurt you," Benedict said.

"Yet you stand ready to, if I attempt to pass your way."

Benedict simply nodded.

"Admit that you fear me, Benedict. All of you are afraid of me. Even when I approach you weaponless like this, something must be twisting in your guts. You see my confidence and you do not understand it. You must be afraid."

Benedict did not reply.

". . . .And you fear my blood on your hands," Brand went on, "you fear my death-curse."

"Did you fear Martin's blood on your own?" Benedict asked.

"That bastard puppy!" Brand said. "He was not truly one of us. He was only a tool."

"Brand, I have no desire to kill a brother. Give me that trinket you wear about your neck and come back with me now to Amber. It is not too late to set matters right."

Brand threw back his head and laughed.

"Oh, nobly spoken! Nobly spoken, Benedict! Like a true Lord of the realm! You would shame me with your excessive virtue! And what is the sticking point of this all?" He reached down and stroked

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the Jewel of Judgment. "This?" He laughed again and strode forward. "This bauble? Would its surrender buy us peace, amity, order? Would it ransom my life?"

He halted once more, ten feet from Benedict now. He raised the Jewel between his fingers and looked down at it.

"Do you realize the full powers of this thing?" he asked.

"Enough of th—" Benedict began, and his voice cracked in his throat.

Brand hurriedly took another step forward. The Jewel was bright before him. Benedict's hand had begun to move toward his blade, but it did not reach it. He stood stiffly now, as if suddenly transformed into a statue. Then I began to understand, but by then it was too late.

Nothing that Brand had been saying had really mattered. It had simply been a running line of patter, a distraction thrown up before him while he sought cautiously after the proper range. He was indeed partly attuned to the Jewel, and the limited control this gave him was still sufficient to enable him to produce effects with it, effects which I was unaware it could produce, but of which he had known all along. Brand had carefully contrived his arrival a good distance from Benedict, tried the Jewel, moved a little nearer, tried again, kept up this movement, this testing, until he found the point where it could effect Benedict's nervous system.

"Benedict," I said, "you had better come to me now," and I exerted my will, but he did not budge nor did he reply. His Trump was still functioning, I felt his presence, I observed events because of it, but I could not reach him. The Jewel was obviously affecting more than his motor system.

I looked to the clouds again. They were still growing, they were reaching for the moon. It seemed they might come across it soon. If I could not pull Benedict out when it happened, he would fall to the sea as soon as the light was fully blocked, the city disrupted. Brand! If he became aware of it, he might be able to use the Jewel to dissipate the clouds.

But to do that, he would probably have to release Benedict. I did not think he would do it. Still. . . The clouds seemed to be slowing now. This entire line of reasoning could become unnecessary. I thumbed out Brand's Trump though, and set it aside.

"Benedict, Benedict," said Brand, smiling, "of what use is the finest swordsman alive if he cannot move to take up his blade? I told you that you were a fool. Did you think I would walk willingly to my slaughter? You should have trusted the fear you must have felt. You should have known that I would not enter this place helpless. I meant it when I said that I was going to win. You were a good choice though, because you are the best. I really wish that you had accepted my offer. But it is not that important now. I cannot be stopped. None of the others has a chance, and with you gone things are going to be much easier."

He reached beneath his cloak and produced a dagger.

"Bring me through, Benedict!" I

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cried, but it was no use. There was no response, nothing strong enough to trump me up there.

I seized Brand's Trump. I recalled my Trump battle with Eric. If I could hit Brand through his Trump, I might be able to break his concentration sufficiently for Benedict to come free. I turned all of my faculties upon the card, preparing for a massive mental assault.

But nothing. The way was frozen and dark.

It had to be that his concentration on the task at hand, his mental involvement with the Jewel, was so complete that I simply could not reach him. I was blocked at every turn.

Suddenly, the stairway grew paler above me and I cast a quick glance at the moon. A limb of cumulus now covered a portion of its face. Damn!

I returned my attention to Benedict's Trump. It seemed slow, but I did recover the contact, indicating that somewhere, inside it all, Benedict was still conscious. Brand had moved a pace nearer and was still taunting him. The Jewel on its heavy chain burned with the light of its use. They stood perhaps three paces apart now. Brand toyed with the dagger.

". . . .Yes, Benedict," he was saying, "you probably would have preferred to die in battle. On the other hand, you might look upon this as a kind of honor—a signal honor. In a way, your death will allow the birth of a new order. . ."

For a moment, the Pattern faded behind them. I could not tear my eyes from the scene to examine the moon, however. There, within the shadows and the flickering light, his back to the Pattern, Brand did not seem to notice. He took another step forward.

"But enough of this," he said. "There are things to be done, and the night grows no younger."

He stepped nearer and lowered the blade.

"Good night, sweet Prince," he said, and he moved to close with him.

At that instant, Benedict's strange mechanical right arm, torn from this place of shadow and silver and moonlight, moved with the speed of a striking snake. Thing of glinting, metallic planes like the facets of a gem, wrist and elbow wondrous weaves of silver cable, pinned with flecks of fire, stylized, skeletal, a Swiss toy, a mechanical insect, functional, deadly, beautiful in its way, it shot forward with a speed that I could not follow, while the rest of his body remained steady, a statue.

The mechanical fingers caught the Jewel's chain about Brand's neck. Immediately, the arm moved upward, raising Brand high above the floor. Brand dropped the dagger and clutched at his throat with both hands.

Behind him, the Pattern faded once again. It returned with a much paler glow. Brand's face in the lantern light was a ghastly, twisted apparition. Benedict remained frozen, holding him on high, unmoving, a human gallows.

The Pattern grew dimmer. Above me, the steps began to recede. The moon was half-occluded.

Writhing, Brand raised his arms above his head, catching at the

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chain on either side of the metal hand that held it. He was strong, as all of us are. I saw his muscles bunch and harden. By then, his face was dark and his neck a mass of straining cables. He bit his lip; the blood ran into his beard as he drew upon the chain.

With a sharp snap followed by a rattling, the chain parted and Brand fell to the floor gasping. He rolled over once, clutching at his throat with both hands.

Slowly, very slowly, Benedict lowered his strange arm. He still held the chain and the Jewel. He flexed his other arm. He sighed deeply.

The Pattern grew even dimmer. Above me, Tir-na Nog'th became transparent. The moon was almost gone.

"Benedict!" I cried. "Can you hear me?"

"Yes," he said, very softly, and he began to sink through the floor.

"The city is fading! You've got to come to me right away!"

I extended my hand.

"Brand. . ." he said, turning.

But Brand was sinking also, and I saw that Benedict could not reach him. I clasped Benedict's left hand and jerked. Both of us fell to the ground beside the high outcrop.

I helped him to his feet. Then we both seated ourselves on the stone. For a long while, we did not say anything. I looked again and Tir-na Nog'th was gone.

I thought back over everything that had happened, so fast, so sudden, that day. A great weight of weariness lay upon me now, and I felt that my energies must be at their end, that shortly I must sleep.

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I could scarcely think straight. Life had simply been too crowded recently. I leaned my head back against the stone once more, regarding cloud and star.

The pieces. . . The pieces which it seemed should fit, if only the proper jiggle, twist or flip were applied. . . They were jiggling, twisting and flipping now, almost of their own accord. . .

"Is he dead, do you think?" Benedict asked, pulling me back from a half-dream of emerging forms.

"Probably," I said. "He was in bad shape when things fell apart.

"It was a long way down. He might have had time to work some escape along the lines of his arrival."

"Right now it does not really matter," I said. "You've drawn his fangs."

Benedict grunted. He was still holding the Jewel, a much dimmer red than it had been so recently.

"True," he finally said. "The Pattern is safe now. I wish. . . I wish that some time, long ago, something had not been said that was said, or something done that was not done. Something, had we known, which might have let him grow differently, something which would have seen him become another man than the bitter, bent thing I saw up there. It is best now if he is dead. But it is a waste of something that might have been."

I did not answer him. What he had said might or might not be right. It did not matter. Brand might have been borderline psychotic, whatever that means, and then again maybe not. There is always a reason. Whenever anything has been mucked up, whenever anything outrageous happens there is a reason for it. You still have a mucked-up, outrageous situation on your hands, however, and explaining it does not alleviate it one bit. If someone does something really rotten, there is a reason for it. Learn it, if you care, and you learn why he is a son of a bitch. The fact is the thing that remains, though. Brand had acted. It changed nothing to run a posthumous psychoanalysis. Acts and their consequences are the things by which our fellows judge us. Anything else, and all that you get is a cheap feeling of moral superiority by thinking how you would have done something nicer if it had been you.

So as for the rest, leave it to heaven. I'm not qualified.

"We had best get back to Amber," Benedict said. "There are a great number of things that must be done."

"Wait," I said.

"Why?"

"I've been thinking."

When I did not elaborate, he finally said, "And. . .?"

I riffled slowly through my Trumps, replacing his, replacing Brand's.

"Haven't you wondered yet about the new arm you wear?" I asked him.

"Of course. You brought it from Tir-na Nog'th, under unusual circumstances. It fits. It works. It proved itself tonight."

"Exactly. Isn't the last a lot of weight to dump on poor coincidence? The one weapon that gave you a chance up there, against the Jewel. And it just happened to be a

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part of you—and you just happened to be the person who was up there, to use it? Trace things back and trace them forward again. Isn't there an extraordinary—no, preposterous—chain of coincidences involved?"

"When you put it that way: . ." he said.

"I do. And you must realize as well as I do that there has to be more to it than that."

"All right. Say that. But how? How was it done?"

"I have no idea," I said, withdrawing the card I had not looked upon in a long, long while, feeling its coldness beneath my fingertips, "but the method is not important. You asked the wrong question."

"What should I have asked?"

"Not 'How?' but 'Who?' "

"You think that a human agency arranged that entire chain of events, up through the recovery of the Jewel?"

"I don't know about that. What's human? But I do think that someone we both know has returned and is behind it all."

"All right. Who?"

I showed him the Trump that I held.

"Dad? That *is* ridiculous! He must be dead. It's been so long."

"You know he could have engineered it. He's that devious. We never understood all of his powers."

Benedict rose to his feet. He stretched. He shook his head.

"I think you have been out in the cold too long, Corwin. Let's go home now."

"Without testing my guess? Come on! That is hardly sporting. Sit down and give me a minute. Let's try his Trump."

"He would have contacted someone by now."

"I don't think so. In fact—Come on. Humor me. What have we got to lose?"

"All right. Why not?"

He sat down beside me. I held the Trump where both of us could make it out. We stared at it. I relaxed my mind, I reached for contact. It came almost immediately.

He was smiling as he regarded us.

"Good evening. That was a fine piece of work," Ganelon said. "I am pleased that you brought back my trinket. I'll be needing it soon." ★

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GALAXY BOOKSHELF

Spider Robinson

Dune, Frank Herbert, Berkley, 537 pp., $1.95
Dune Messiah, Frank Herbert, Berkley, 256 pp., $1.50
Children of Dune, Frank Herbert, Berkley, 444 pp., $8.95
Infinity Box, Kate Wilhelm, Harper & Row, 318 pp., $8.95
Where Late The Sweet Birds Sang, Kate Wilhelm, Harper & Row, 251 pp., $7.95
A Song For Lya, George R. R. Martin, Avon, 208 pp., $1.25
The Long Arm of Gil Hamilton, Larry Niven, Ballantine, 182 pp., $1.50
Not Without Sorcery, Theodore Sturgeon, Ballantine, 186 pp., $1.50
The Best Of Isaac Asimov, Fawcett, 319 pp., $1.50
SF: The Great Years, Vol. II, ed. Carol & Frederik Pohl, Ace, 276 pp., $1.50
The Ancient Mysteries Reader, ed. Peter Haining, Doubleday, 321 pp., $7.95

HEY, YOU FOLKS are *beautiful!*

Back in the Feb. '76 Bookshelf, I asked for some feedback from you, the reader, and gave my mailing address. My friends warned me that it might go off in my face, but I wanted to get some better idea of who I was writing for (who *are* all you zombies out there?). Jim Baen keeps telling me I'm terrific, but then what does he know? I expected

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anywhere from Plenty o' Nuttin' to a dozen or so crayoned threats on my life, and what did I get?

An average of seven letters a day for the past three weeks now—so many that Baen is even now gnashing his teeth and wondering when the hell this column is going to arrive. Virtually all of them are coherent. The vast majority of them are thoughtful. Many are incisive. All save one are polite. And fully ten percent of them are legible.

Seriously, thanks a lot. I got just what I was looking for, and then some. I was pleasantly astounded to learn how many of you really do care, passionately about the sf you read (who the hell keeps buying all those turkeys, then?), and gratified by all the comments on this column of mine. Apparently I'm satisfying you people, which is my heartfelt aim. I wish it were physically possible to send a personal reply to each and every one of you, but since it isn't, please assume that I mean *you* when I say, from the bottom of my heart, "The same to you, buddy."

Now back to work.

* * *

I have some doubts about the advisability of devoting a full half a column to only three books—but it seems to me that they loom large enough on the sf horizon to constitute an Event.

According to Berkley, *Children of Dune* is the conclusion of a trilogy, the last book in the enormous Dune cycle. So I got out my copies of *Dune* and *Dune Messiah* and read the whole damn thing in sequence (Notes From The Bookstore Rides Again). For the past two weeks I've been so immersed in Arrakis (no, wait—that's a mixed metaphor. . .) so saturated with Fremen lore (nope, dammit—that's another) I say, I've been so involved with Muad'Dib & Co. that my nose itches where the stillsuit binds and the whites of my eyes are turning blue. You might say I'm. . .er. . .Dune buggy.

Dune itself is one of the most discussed books of our genre, clearly a classic work. It was a magnificently ambitious undertaking, an attempt to mate mystical theology with the hardest of hard science fiction, and it worked well enough to satisfy virtually everyone. Re-reading it was an extremely pleasant experience: I found it to be even better than I remembered it (the book hadn't grown: *I* had).

There were, of course, minor flaws. Things I stubbed my toe on included the Evil Baron, so stereotyped he might more properly be called a monotype; and the ridiculous ease with which he corrupted Yueh. It's just not plausible to have a "foolproof conditioned loyalty," so good it's *never for a second* doubted by the most suspicious Mentat in the known universe, fall to pieces under the most

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obvious counter imaginable (the old "You haff relatifs on Giedi Prime?" ploy).

But minor beefs got swept away by the sheer brilliance of the writing, the astonishing *depth* of background and characterization, the incredible scope of Herbert's imaginative vision. *Dune* is a tapestry so vast and intricately worked that you excuse the fact that the third unicorn from the left has five legs. Any of you chuckleheads who've failed to buy it thus far are enjoined to do so at once. Of the two editions currently on the stands, I reluctantly recommend the Ace: its cover painting is grossly inferior to that of the Berkley edition, but there seem to be fewer typos—and there are still a *few* of the original-print-run Aces around, which are 45¢ cheaper. On the other hand, if you get the Berkley, you can get *Dune Messiah* and *Children of Dune* with coordinated covers. It's your dough.

So then I read *Dune Messiah* again, with *Dune* fresh in my mind, and by golly, *it* was better than I remembered it too. The sheer inventiveness: Guildsmen swimming in tanks of orange gas, Bijaz the mad dwarf, the Face Dancer assassin (whose code requires that his victims *always have a fair chance to escape*), Hayt the ghola with his ball-bearing eyes. . .like a Christmas tree hung with egg-size opals. In fact, that's the trouble.

Because those lovely opals disguise a rather sparse tree—at least by comparison with *Dune*. The whole book revolves around an intricate and subtle conspiracy against Muad'Dib, involving the Spacer's Guild, the mysterious Tleilaxu, and the good old Bene Gesserit. Yet, in its very intricacy and subtlety, the plot becomes so convoluted and Byzantine that I fail to understand what any of the plotters stood to gain. The blinding of Muad'Dib? With a planet-wrecking atomic device, for God's sake? Moe of the Three Stooges could have handled the job more efficiently. The seduction of Muad'Dib with the promise of resurrection of his dead wife? Fine; but basing a whole conspiracy on the death of one woman in childbirth requires either blind faith in luck, or else the very prescience which Herbert says cannot be applied to another prescient or his companions. For awhile I thought the idea was for the ghola to assassinate Muad'Dib, but that turned out to be a feint. On the other hand, it might have worked—and if it had, the *real* plot would have failed.

Enough. This is getting as complex as the conspiracy itself—and perhaps as pointless. I still did enjoy the book a lot, even as I was driving a truck through the holes in its logic, because it had the same majestic rolling grandeur of the previous book, steam-rollering objections as they arose.

And so I came, with tired eyes

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and a thirst you wouldn't believe, to *Children of Dune*. Bear in mind throughout the following that I'm basing it all on the version serialized in *Analog*—the eventual Berkley hardcover (which should be out by the time you read this) may just contain changes invalidating some of my remarks (whaddya gonna do?).

Okay. To start with, I found *CoD* about three times as dramatically compelling as *DM*, about twice as much as *D* itself (my fingers are tired). In the better-than-ten years since the first book was written, Herbert has polished the technique of cliff-hanger flash-cuts (leaving each character just as you're desperate to find out what happens next, except that you're equally desperate to see what has happened to the character he's returning to now) to something near perfection, sustaining a dramatic tension that kept me chained to my mailbox (right in the teeth of the wind whipping in off the Bay of Fundy, mind you) waiting for the next installment to arrive. John Brunner is the only writer I can think of who does the C-H F-C technique as deftly.

Furthermore, there are some absolutely *delightful* surprises, startling twists so ingenious as to dilate the pupils. I wouldn't spoil any of 'em for the world, and if some wiseacre comes up to you with an evil grin and says, "Hey, you know what *happens* in *Children of Dune*?" I suggest you wedge a softball against his soft palate—but take my word for it, you'll never guess in a million years, even though the first two books give you all the hints you need.

On top of all this, there's a satisfying cast: the Lady Jessica, who waited patiently offstage throughout *DM*, returns front and center, as does Gurney Halleck. There's Duncan Idaho, good old Stilgar, the ever-youthful Irulan, the Bene Gesserit, and, of course, the C of D, Leto II and Ghanima (two of the strangest characters even sf has to offer)—more than enough to compensate for Arrakis's unfortunate propensity for using up characters. (lessee now: Leto I, Yueh, Liet-Kynes, Hawat, Duncan I, Piter, The Baron, Chani, Muad'Dib, Scytale, Bijaz, Gaius Helen Mohiam, several shitloads of Sardaukar. . .puff puff. . .and wait'll you see who gets croaked in *this* book).

So with all this, why did I finish the book unsatisfied?

Minor gripes first. The intricate conspiracies and counterplots which began to get out of hand in *DM* reach a point perilously close to absurdity here (maybe Herbert just plain *likes* treachery and intrigue). I read page after page of delicate verbal fencing, with at least triple-meanings, of which I understood not a word until and unless Herbert told me, in Auctorial Voice, what had just transpired. Worse, he threw in an impossibly subtle conversation carried on in *sign language* (the old

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"Atreides hand signals," but here given such an enormous implied vocabulary, grammar and syntax as to give an accomplished hula artist apoplexy) between Gurney and Jessica. This conversation is held in sign-language to foil the spy-cameras of Alia—*who knows the sign-language*. (Herbert says, "The Atreides had used this means of communication for centuries without anyone being the wiser." But Alia has available to her the total memory of every one of those Atreides forebears.)

Other minor beefs: oh the hell with it, this is going on too long. Stop picking nits, Spider.

Well the trouble is, the one thing that nearly spoiled the book for me, the Main Pain, was the *ending*. And if I give it away you're liable to stuff a softball in my mouth.

I know, I know. It's not fair to knock a book without telling you why—but I *can't*. What value the ending does have arises from its unexpectedness—in fact, I defy you to guess it ahead of time (that's one big objection—it wasn't planted at all, just pulled out of a hat in the last act). By me it was a wet firecracker, but you may think it's the dromedary's drawers.

Maybe I can tell you how I *felt* about the ending, without giving anything away. My first response, after I put the last installment in my "Finished For Review" file (my office floor) was, "After four thousand years of selective breeding we get a midget covered with Crazy Glue?"

But that's a purely materialistic response to the physical, science-fiction plot side of the ending. My discontent ran deeper. So I talked it over with beloved Jeanne (she too had just finished the whole trilogy), who tends to see the spiritual side of things clearer than I do, and she said *her* first response was, "After a quarter of a million words of philosophical searching, you tell me yin-yang?"

Neither of those glib epigrams is liable to mean a lot to you if you haven't read *CoD*, but it's the best I can do without, in effect, murdering the ending in order to demonstrate that the ending is dead. Almost makes me wish I was a critic, instead of a reviewer (your Adviser in the spending of your sf dollar)—then I'd be allowed (even expected) to approach a book the way an autopsy team approaches a body. You'll have to take my word for it that the Muad'Dib *I* remember would, if his limited prescience had shown him *this* future, have committed suicide significantly earlier than he did.

Tell you what: why don't you stagger out and score a copy of the book, read it, and then tell me if you agree or not? The immediately-above notwithstanding, I genuinely enjoyed reading *Children of Dune*, right up to the last tenth or so, enjoyed it more than I enjoyed some of the books I've

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praised unreservedly in past columns.

And—and this is a big "and"—IF Berkley's PR department is under a misapprehension, if this is not the last, final, concluding book of a trilogy, my main objection falls entirely apart. God knows Herbert has left himself all the room in the world for another sequel—that's precisely my objection, in fact. *As a trilogy,* the Dune cycle doesn't really *get* anywhere—and after all that bloodshed and sacrifice, it leaves us only the (apparent) certainty that the human race is in for four thousand years of benevolent tyranny under a seemingly-compassionless alien (which is a misleading hint, by the way, so don't be mad). Finding out that there was a third Dune book invalidated a lot of my original objections to *DM,* made re-reading it much more pleasurable. A similar revelation would make *CoD much* more palatable.

So that's all I have to say—but from the feedback mail I've been getting, it's become evident to me that a good many of you out there are fond of abominable puns (is that redundant?), so I can't leave this topic without passing on what the jilted Fremen said to the cookie-seller: "I love-lorn o' Dune."

* * *

Okay. So I visited the States again last month, and returned home in the usual black depression—only to find that the barn had caved in on top of the firewood, that the funny little bug which kept returning my breakfast was tonsillitis, and that every single one of the review-books waiting for me in the Post Office was a dead dog. 1975 was an all-time boom year for sf (*Locus* counted *890 titles printed*), 1976 promises to be even bigger—and better'n 95% of the output strikes me as Wretched Excess. It was all-too-tempting to turn out a column-full of riddled turkeys for you, to hang bleeding corpses up on these hooks for your inspection. But I didn't want to do that, somehow. I like to read Bierce—but I wouldn't *be* Bierce for all the lumber in the Owl Creek Bridge.

Clearly, it was time to Get Grunted.

So I got on the phone, mailed off a few frantic requests, dug into the stuff I'd bought for myself in the stateside bookstores (Notes From The Bookstore again) and assembled what you are about to read. *Next* month, when I'm feeling better, you get the slaughtered turkeys.

* * *

It may be paradoxical to recommend as a Best Buy a book which registers only 50% on the Spidermeter—but by God, that's what I'm about to do. Four of the ten stories in *A Song For Lya,* George R.R. Martin's first collec-

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tion, I distinctly didn't care for at all, one was so-so, and one was a one-joke short-short that was not longer than a one-joke story should be, but not much better either. What more-than-saves the book is the surpassing excellence of the rest of it.

The clear winner is George's Hugo-winning "Song For Lya," which is no surprise. I loved that damn story when I first read it in *Analog,* and I loved it again on re-reading. Like *Dune,* it is one of sf's rare attempts to explore spirituality. The only novella I can recall that pulled this off so successfully is Chad Oliver's "The Marginal Man"—and the similarity is striking, in that both writers examined the same question in depth and came up with exactly opposite answers. The question is, "If all men could achieve true one-ness, at the cost of their individual humanity—*should they?*" George's protagonists find, as Lazarus Long did in *Methuselah's Children,* that there is no elegant solution: you pays your self and you takes your choice. Check out "Song For Lya" and find out the choices made, and their consequences. It's not at all a flashy, "read-me!" kind of story—instead it's thoughtful, intriguing, and masterfully paced, alternately heart-warming and—chilling. After finishing it, you're liable to spend the next hour or two in deep thought—and that's the highest praise I've got.

Also excellent were "With Morning Comes Mistfall," a wistful examination of the conflict between those who want a sense of wonder and those who cannot tolerate one; and "The Second Kind of Loneliness," a diary-type story of a solitary Gate-keeper in the empty depths of deep space, who learns that he was much lonelier on a crowded Earth. Both stories are distinguished by unusually striking visual imagery, evoking with a few words a splendor that no artist born could ever render, and both contain some splendidly real characters. The remaining goodie, "Override," has less to say: it's "merely" an adventure. But it sticks in the mind because of its marvelously crafted mood, and the warm, sweet horror to which it builds.

About the ones I didn't like: some disappointed me by telegraphing their endings, but if you aren't the kind of fan(atic) who's Heard It All Before, you may find them satisfying if minor. The only certifiable duds are "Run To Starlight," a dumb story of interspecies football; "The Exit To San Breta," a silly fantasy about a haunted Edsel; and "Slide Show," a non-story with a beginning but no middle or end (two guys with opposing viewpoints air them, and then the curtain comes down).

But I repeat and insist that the good stuff in *Song For Lya* is so dazzlingly good that it would cover a much greater multitude of sins.

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Prices being what they are these days, a buck and a quarter is a helluva bargain for this one. George Railroad strikes me as one of the best of the newcomers to the field. How the hell come he didn't win that 1963 Campbell Award? (Didn't some guy named Pournelle win it that year? What ever happened to him anyway?)

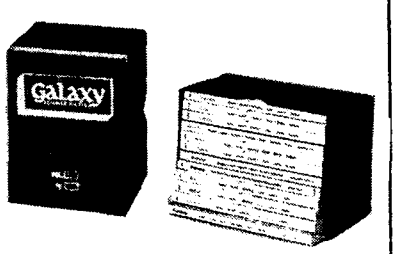
* * *

Somehow, or other, I forgot to tell you about Kate Wilhelm's *Infinity Box* collection when I got it a few months ago—just too damned many books in this office. My humble apologies to Ms. Wilhelm, and a hearty exhortation to you to go out and find it. It rated 90% on the Spidermeter, 8 of its 9 stories being thoroughly satisfying, some of them superb.

Wilhelm is a superbly polished craftsman (craftsperson? Aw, scroo dat gobbidge), and "The Infinity Box," "The Time Piece," "April Fool's Day Forever," "Where Have You Been, Billy Boy?", and particularly "The Village" are stories so good as to go a long way toward backing up the claims of Barry Malzberg (on the flyleaf) and Dan Miller (*Locus*) that she is one of the best practitioners of the short story in or out of sf.

I must qualify that just a bit, in order to be of any use to you. It don't help for the reviewer to say "it's great" or "it stinks" unless

THIS SPACE RESERVED FOR GALAXY



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he tries to convey as well *why* he thinks so: my feedback-mail tells me that the chances of your taste matching mine book-for-book is vanishingly slight.

So I say, not as criticism but as explanation, that these stories are more "literary" than they are "down-home," more "speculative fiction" than "science fiction." A Laumer fan or a Niven addict will probably enjoy them much less than would say, an *Orbit*-lover or a late-period Silverberg man. John Campbell would probably have bounced most of them. Does that help any?

* * *

None of that last paragraph, however, applies to Wilhelm's new novel, *Where Late The Sweet Birds Sang*. It is a bit more catholic in appeal than her short stories tend to be, its story-line a more "standard" sf plot, its style more conventional. Perhaps—and I surprise myself by writing this—that's why I didn't enjoy it quite as much. The plot was a hair too standard, all-too-well summed up on the flyleaf—Wilhelm never *surprised* me.

But then, that's a purely personal, subjective beef: I'm a surprise-freak. All the friends I've lent *Where Late* to have come back satisfied, and on the whole I did too. It is engaging despite its predictability: the machinery may be standard-issue—but it is utterly noiseless.

What's that? You want a plot summary? Okay: an unspecified byproduct of Dat Old Debbil technology sterilizes the human race, a chillingly plausible proposition. But before it's too late, a handful of the best and brightest lick the cloning problem, allowing survival of the race. . .after a fashion. That's all I'm gonna spill, except to say that the ensuing complications, while almost inevitable, are made damned interesting by Wilhelm's abundant insight into the nature of human-ness, however it reproduces.

Is originality a function of individuality? It sure and hell seems like it, to Wilhelm and to me.

* * *

You can't use the Spidermeter on a three-story collection, so the hell with it. Here we have *The Long Arm of Gil Hamilton:* two novellae and a novelette covering the exploits of Gil Hamilton, the Man From ARM. Mating science fiction and detective-mystery fiction is *much* more difficult than it might seem to a non-writer—as Larry himself tells you in his Afterword. And nowhere has it been more beautifully done than in this book.

Mind you, the last novella, "ARM," is only okay, distinguished more by intricacy of plot-puzzle than anything else. Furthermore, the middle novelette, "The Defenseless Dead," is only

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better-than-average, not Hugo-class by any means.

But the hell with that. If you missed "Death By Ecstasy" when it ran here in *Galaxy* in January 1969 as "The Organleggers," fly do not run to your bookstore and score this book—and don't stop to get your change. "Death By Ecstasy" is in my opinion one of the best damn novellas that sf has ever produced, a story whose every detail will stay burned into your memory for years after you've forgotten where you read it, a masterpiece of sheer story-telling. It contains two of the most horrifying and ingenious methods of murder ever devised by man (equalled only by the method used by the protagonist of my own first novel, *Telempath,* forthcoming from Putnam-Berkley along about November, plug plug), set like parentheses at the story's beginning and end—and I defy you to guess the one at the end. What a finish!

In between these Biercean delights is a superbly plotted story with a richness of invention that delighted me in *spite* of the fact that I did read the damn thing in '69 and remembered it almost verbatim. Look: it has nothing heavier to say than "Organlegging isn't nice"—it's pure adventure. But it's adventure so masterful that if they ever get around to updating the *Science Fiction Hall of Fame,* "Death By Ecstasy" will get my vote in the novella class.

What a hell of an ending! Go get it.

* * *

Oh Jesus—four goodies left to cover and I'm running out of room. All right, dammit: trot out the minireviews. I can't leave without recommending these.

First, and clearly best, *Not Without Sorcery,* Ballantine's godsend re-release of one of the hardest-to-locate Ted Sturgeon collections. A clear 100% on the Spidermeter, which goes without saying except that I just said it. If a finer writer than Sturgeon ever existed, he forgot to publish—and these stories are some of Ted's vintage stuff. It contains "Artnan Process"; *both* of the Ether Breather stories (outdated by Progress, but then so is *Stranger In A Strange Land*); "It"; (one of the classic horror stories of all time); and when the hell is someone going to have the sense to release a packaged set of reprints of *all* of Sturgeon's work, the way they've done for Heinlein and Ellison and Niven? Ghaddamit, I'm tired of haunting second-hand bookstores.

Next, *The Best Of Isaac Asimov.* Isaac himself points out in his intro that the title is not precisely correct, but he also points out that a book titled "The Pretty Good and Pretty Representational Stories Of Isaac Asimov" wouldn't break any sales records. Well, it should. What you got here is a round dozen yarns

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spanning Isaac's career, with the emphasis on the 50s, which by Isaac was the Golden Age. You got the first story he ever published ("Marooned Off Vesta"), you got "Nightfall," you got "The Fun They Had," and you got "The Last Question," which Isaac elsewhere calls (with characteristic candor) the greatest sf short story ever written—and who am I to argue? What more do you want for $1.50? Eight more stories? You're faded. Another 100% rating.

Science Fiction: The Great Years, Volume II, edited by Carol and Fred Pohl, is another collection of blasts from the past, and it stands up better than most of the ones I've seen so far. It contains Morrison's classic "The Sack"; Sturgeon's "Mewhu's Jet" (another dated Sturgeon—but it plays, it plays); Bester's "Time Is The Traitor"; Heinlein's "Columbus Was A Dope"; Van Vogt's "The Rull"; and a special treat: a novella (in collaboration with Frederic Arnold Kummer, Jr.) by Dirk Wylie, the semilegendary member of the original Futurians who was cut down by wartime injury before he could amass an output as large as his talent. The yarn's nearly thirty years old and it creaks like hell, but it earns the right to occupy nearly half the book. Another 100% collection.

The Ancient Mysteries Reader: I must admit this one surprised me. The current Ancient Mysteries craze (you know, Von Daniken, Stonehenge, Atlantis, Loch Nessie, like that) generally gives me a soft pain beneath the wallet—a failing in me, perhaps. At least, this collection by newcomer Peter Haining makes me think so. Marvelous stories, two apiece on nine A.M. themes, by an American and English cast diverse enough to include Poe, Wells, Sax Rohmer, Geoffrey Household (whose name is admittedly not a Geoffrey word), Lovecraft (of course), Harry Harrison, Robert Bloch, Sturgeon and—for heaven's sake—Leslie Charteris's immortal Simon Templar! And yes, this too rates a full 100%.

* * *

Lord God of Undershorts—a whole column full of recommended reading—in the face of the greatest Black Tide in sf publishing history. Who says I don't work hard for you people?

I can't close without repeating my heartfelt thanks for all the feedback you've been sending me: you have no idea how gratifying it is—and how instructive. Keep it coming—my address has changed, but the old one still works—and if you missed it, the new one is c/o The Red Palace, R.R. #1, Hampton, Nova Scotia, Canada BOS1LO.

Gotta go now: they're coming with my medication. Don't take any wooden characters. ★

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YE WHO ENTER HERE

ABANDON ALL HEAT,

PHIL BERTONI

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Ever wonder why your PBS's *always* land SSD. . . ?

I

MILDRED MOSKOWSKI stood before her red-faced bear of a husband, quaking visibly, but speaking with steel in her voice. "So you're back. Six years. So now what?" She flinched, out of reflex honed by the years, when he made a sudden movement, then gulped in astonishment as that movement resulted in Stanley Moskowski's falling to his knees with his beefy, weeping face buried in the pink-and-turquoise folds of Mildred's housecoat.

"Aw, Millie," he blubbered, "take me back, hon! I'm begging ya, bunny!"

Mildred, now quaking more than ever, answered with magnesium in her voice. "Wh-whattaya sayin? You remember what your very last words was to me when you stomped outta here to shack up with that redhead?"

Stan groveled a shade lower. "I remember, baby," he moaned, "I said it would be a cold day in Hell before I ever laid eyes on you again. But baby, I must of been outta my head—I was a crazy man. It's like I just came to my senses. I left Mona yesterday and I drove like hell all night to get back to ya. Honey, ya gotta take me back! I'm sorry for everything I done!"

Mildred's tears were now mingling freely with Stanley's as she hugged his close-cropped skull closer. "Oh, Stush," she sobbed.

* * *

Butch Bamberger stared dully at the card in his hand, dimly comprehending that there was something remarkable and vaguely pleasurable about the rightmost column on it, which contained nothing but iterations of the first letter of the alphabet.

Miss Sliggett, the principal, was standing before her desk, wiping her bifocals and slowly shaking her head. Her composure, usually one part primness and nine parts severity, was greatly disturbed. "Well, Hector Bamberger," she said, at length, to the figure slouched in the chair before her, "it's hard to believe. I had always said that you stood about as much chance of going on to tenth grade as a snowball in Hades—well, after your third year in ninth grade, how could you blame me?"

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Butch plucked tentatively at a pimple and returned his gaze to that mystifying card.

"Well," continued Miss Sliggett, "I'm certainly glad to be wrong, in this case. Frankly," she said, replacing her spectacles, "I can't imagine how you did it, getting all A's last period. I suspect you've had it in you all along, just needed a little motivation, isn't that right, Hector?"

Butch grunted warily.

"At any rate, I just wanted to congratulate you myself," the principal said, returning to her chair, "and to tell you to keep in touch after you've gone on to high school. That's all." She managed a prim smile. "Good luck—Butch."

Butch managed a return grunt and shuffled out the door.

* * *

The ballroom of a certain Washington hotel was in a mild uproar. The announcement of the press conference had come suddenly and unexpectedly, as mutely attested to by the unlikely number of unfinished drinks sitting in several bars throughout the capital. Speculation was loudly rampant concerning the purpose of the conference; some supposed it to be the announcement of yet another political rebirth, the more cynical guessed it was to be a nationwide appeal for funds. The most cynical figured it was simply a hype for the book, which wasn't selling nearly as well as was expected.

Without fanfare the ex-President strode in, strangely exultant. He assumed the podium and began briskly, confidently. "Ladies and gentlemen of the press. I have a very important statement to make. I will be brief."

A heavy murmur ran through the ranks of the news media. "Look at that," said a TV correspondent, nudging his compatriot, amazed. "He's not sweating—there's not a bead of sweat on him!" Several others remarked on the absence of the customary nervous, frozen, forced grin on the visage of the former Chief of State. It had been replaced by an easy, confident smile. Apprehension surged through the crowd.

The ex-President waited for the swell to subside. "First of all, I'm very glad to see you all again."

Muttered sarcasms floated up from the assembly. The speaker raised a hand, smiling sadly. "Please," he said, "in times past, it would have been an untruth for me to tell you that. But try and believe me when I say it now. The ill-will I bore you then came largely out respect for your power, and, indeed, more than a little fear. I shall try and set things right with the statement I am about to make." He

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paused a moment. "The statement is this: Earlier today I visited the Federal District Court of Washington, D.C. and swore out a series of affidavits attesting to my involvement and/or compliance in a number of crimes and misdemeanors. Following that, I met with the President of the United States and petitioned him to revoke, in the interests of justice and fairness, a certain Presidential order regarding those selfsame crimes."

There was absolute silence. Then an elderly stringer from a Midwestern daily clutched convulsively at his chest and was reluctantly carried out by two of his colleagues.

"I will entertain a few questions before proceeding with the second part of my statement," said the retired chief executive, smiling.

Again there was silence. Finally, a grizzled veteran of the Fourth Estate, long known as possibly the most cynical member of a cynical profession, got to his feet and drawled, "Sir, during your term of office, in a recorded private conference at which this very matter was raised, you said—now let me quote you exactly—" There were some snickers as he riffled through the pages of a large, well-worn notebook, "You said, 'gentlemen, you can be assured that this information will become public only when Hell freezes over.' " The expletive was not deleted. "How do you explain this about-face, sir?"

The reporter sat down lazily, while the rest of the press braced itself.

To everyone's surprise, the man at the podium looked sheepishly toward the floor, and after a long silence, said quietly, "Sir, every man must answer for himself—if not in this world, then the next. I prefer to discharge my obligations and to take my medicine here and now."

His words were entirely free of the phony homiletic quality which had often caused inward, and at the end, outward groans among the press under similar circumstances. This was truly a confession.

The speaker asked for further questions, and when there were none from the hushed throng, he proceeded with the rest of his statement, and steadily spun out a collection of names, dates, and events of such harrowing sordidity that it caused the grizzled hackles of that cynical old reporter to rise and his pencil to drop from nerveless fingers.

II

Meanwhile, all Hell was breaking loose. In the lavishly-appointed boardroom, Satan stubbed out his fourth cigarette in as many minutes. "Now tell me," he bellowed, "what in Hell's going on?"

The foul fiend Flibbertygibbet, Chief of Operations, stood up nervously after much prodding from his neighbors at the conference table. "I-I-It ap-p-pears to b-b-be the weather, sir," he said, through

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chattering teeth. He was wearing only a tropical-weight suit.

"Damn right it's the weather!" roared Satan, turning up the collar of his chesterfield, "What I want to know is *why*!" The fog of exhalation accompanying that last word, tinged with crystalline sulfur, made a spectacular little snowfall when it froze to solidity and tinkled down along about the middle of the table.

"We don't know, sir," came a voice and a vapor cloud from inside the snorkel hood of an Air Force parka.

"Who's that in there?" snarled Satan.

"It's Beelzebub, sir," came the muffled voice.

"You look stupid." The Prince of Darkness glared around the table. "All right, then, you boobs don't know, get me someone who does!"

"Humba meyerolgisser?" said Mammon, raising his forepaw.

"Mammon, get that damn scarf off your face so I can hear what you're saying!" shouted Satan, stamping his hooves to restore the circulation.

"Yes, sir," said Mammon, clawing at his West Point muffler. "I said, 'How about a meteorologist, sir?' "

"How about one, indeed! Have we got any around?"

"Oh, yessir," said Mammon warmly, "there's a special place in Hell for meteorologists." He pulled out a pocket-sized map of Hell from the folds of his army greatcoat and consulted it closely. "Let's see, they're in the Special Sector, just south of the life insurance salesmen. I can get you one in just under three hours," he beamed.

"Three hours!" bellowed Satan. "The Special Sector's only a five-minute drive from here! What are you gonna do—walk?"

"Actually, sir, I was thinking of taking a soulsled. You see, none of the cars will start this morning."

"All right, then, get on it! What in the hell is this place coming to? What are you still standing up for, booby?"

This last remark was directed at Flibbertygibbet, who was still at rigid attention in his cream-colored dacron suit, a purplish cast to his normally ruddy features.

"I don't think he can sit, sir," volunteered the succubus sitting next to him, who was bundled in a heavy mackintosh, "he appears to be frozen."

"Well, of course he is, in that toilet-paper suit! Why isn't he wearing something warm?"

"He just flew in from a meeting in Akron, sir, and came straight here. I'll thaw him out, sir," she said, with a cold, yet somehow obscene, smile.

"Do that," said Satan. "And let's get some space heaters in here!" he roared.

III

Dave Pirelli, programmer, was daubing a slice of bread with peanut

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butter for his two-year-old son. "Voilá!" he said, as he lay down the knife and presented the comestible to his son with a flourish. It fell on the floor. Dave utttered a benign curse. Somewhat to his surprise, however, it had landed sticky side up. Dave scooped it up, checked the bottom for overt filth, and handed it to his son, who, in his zeal, fumbled it and dropped it again. To Dave's utter amazement the peanut butter side had again missed contact with the floor. Dave mumbled something, and while his son happily coated himself inside the out with the peanut-butter sandwich, Dave hastily prepared another one. This one he threw into the air. Again, no net transfer of peanut butter to floor. A strange chill came over him. He shrugged it off, and holding the slice at eye level, peanut-butter-side-down, dropped it. Right-side up, again. Dave picked it up and munched it meditatively.

He gave the remainder of the delicacy to his son, who was once again looking at him with imploring eyes. He slapped a layer of peanut butter on another piece of bread and ran out the back door to the balcony of his fourth-floor apartment, where he flipped the sandwich over the railing. He watched its fluttering trajectory, and noted that the little square that came to rest on the sidewalk below was brown, not white. He thought a moment, snapped his fingers, and went inside, just as three squirrels came charging around the side of the building in tight hunting formation.

Inside, Dave repeated the same series of experiments with pieces of jellybread, with the same results. Dave pondered this for a moment or two, then a broad smile broke across his face. His sticky-surfaced son, finishing off the last slice of jellybread, looked up at his father with adoration. Then Dave crowed, grabbed his coat, and yelled to his wife, "I'm going to the Comp Center, Liz! My program's going to run!"

* * *

Father McConnelly stopped in his tracks. The two altar boys flanking him also pulled up short, both in mid-yawn. The sleepiness of Father McConnelly was jarred from him in an instant as before him he saw a vision more awesome than any mystic's. Rank upon rank of pews, each crammed to its limit with hushed and reverent humanity. The massed rustle of their rising at his entrance sounded to him as the mighty rush of the pinions of a troop of angels. And more of the faithful were crowding in at the doors. The two octogenarian ushers were helpless to direct the swelling tide.

And this at seven o'clock mass on a weekday morning.

The right-hand altar boy dropped his bell. The jubilant Father didn't hear it at all as he strode forth

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across the sanctuary, voicing clearly audible hosannahs. The altar boys scurried after him unsteadily and took up their positions, as the priest began a triumphant Introit with the glory of the saints suffusing his beaming countenance.

* * *

In the Kremlin the monstrous doors of the hall of the Presidium moved ponderously open. A senior aide emerged, with a sheaf of papers in his hand. His air of cold dignity was disturbed by a noticeable twitching of his lower lip. Another aide, Pyotr Vassilyevich Grunin by name, waiting at his post in the corridor, watched the other's approach apprehensively. He nervously massaged his throat in the unconscious habit he had acquired in the old days. The guards bracketing the great doors made small, shifting movements as the heels of the senior aide clicked across the marble floor to where Pyotr Vassilyevich waited.

The senior aide's lack of composure was obvious to Pyotr, who owed his continued existence to being minutely aware of such things. The senior aide took a deep breath and spoke.

"You will have these directives printed, *tovarishch,* and distributed to every party official in the land for immediate implementation."

Pyotr's breath caught. "*Ochyistka!*" he thought, "Purge!—Again!"

The papers shook slightly as they were handed over. The senior aide abruptly turned on his heel and clicked back across the corridor. Pyotr Vassilyevich swallowed the lump in his throat and began to scan the pages, heart racing. Suddenly his eyes widened and he began to flip the pages back and forth as small inarticulate noises issued from his mouth. "Semyon Semyonovich!" he cried out.

The senior aide, nearly at the door, turned stiffly.

"These—these directives," Pyotr stammered, "they—they call for the immediate dismantling of the prison system, and—and for open emigration, and," he paused and swallowed, and after looking about him nervously whispered, "and for the institution of free elections!" Unaccustomed tears were welling in his eyes.

Semyon Semyonovich nodded slowly. He added, in a solemn, yet strangled, tone, "By unanimous vote of the Presidium."

IV

Down in Hell, the lights flickered out in the middle of the meteorologist's presentation. Three minutes of Stygian darkness ensued, punctuated by the roaring of demons and the crying of lost souls. Then the lights came dimly on again. The electric space heaters, which had been brought in when the small brimstone models had sputtered out, began to whir again, faintly.

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"All right, what was that all about?" demanded the Prince of Darkness, now at the stub-end of his temper.

Moloch, Chief Engineer for Heating and Power, came scurrying in from the communications center, his unwieldy mukluks impeding his progress. "We've lost hydroelectric power, sir," he panted, "the Styx has frozen over. We've gone over to storage batteries for the time being, but if the temperature keeps on dropping we'll shortly reach the point where the electrochemical reaction will cease to be of practical speed."

"Aargh!" said Satan, and rubbed the base of his left horn. He was beginning to feel a migraine coming on.

A young demon, trimly attired in a Head down ski parka, neatly fitted with grommetted horn apertures, saw his chance and spoke up. He was Moloch's third assistant in charge of Planning and Outré Torment.

"Begging your pardon, sir," he said, a little smugly, addressing Satan, "but you will no doubt recall that over three millenia ago I advocated modernization of our facilities, that is, power-plant-wise, going over from fossil fuels-supported electric furnaces to atomic pile and controlled fusion. Certainly, sir, it's obvious that the present difficulty need never have happened, had I not been silenced and stonewalled by certain jealous and reactionary elements in the power structure, whose outmoded ideas date from the time of the Fall!" He finished off looking stern and efficient. He spared himself a triumphant glance at Moloch, who was staring back with blazing eyes.

Satan cast a weary look at the young demon, then gestured with the third finger of his left hand. The shocked expression on the demon's face melted onto the floor with the rest of him. Only a ripstop ski outfit and a playboy key remained atop the congealing puddle that was once an up-and-coming executive.

"Snot-nose know-it-all," growled Satan. "Dammit, Moloch," he shouted, whirling to face the engineer, who quickly truncated a sigh of relief, "what in Hell's going on here? That blast should have vaporized him. All it did was make him runny!"

Moloch spread his upper arms helplessly. "It's part of the general phenomenon, sir. We're working on it."

"Then get your asses in gear," Satan stormed. "And you, he said, pointing a hairy foreclaw at the shivering weatherman, "finish up!"

The blue and naked weatherman, the cold making a grotesque parody of his sunburn-blistered skin, turned to the huge weathermap setup to which he was permanently attached by a heavy chain surgically affixed to his abdomen.

He went into a long recital about low-pressure areas and isotherms,

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rattled off the record temperatures for that date for the past seventeen centuries, remarking that today's was a new all-time low, and finished off with gloomy predictions for the weekend.

"So?" That was Satan. "What do we do about it?"

The meteorologist smiled his brightest TV smile. "Well, sir," he chuckled, "as the great humorist Mark Twain once said, 'Everybody talks about the weather, but nobody d—' "

He was interrupted as the eight-foot icicle hurled by Satan pierced his body. He contorted with pain and broke off, looking chastened.

"Chain him to a glacier," ordered Satan, disgusted. Two burly sloth-demons hauled the hapless criminal out by the arms, the enormous weathermap which emanated from his belly dragging along after him.

"Any other bright ideas?" queried Satan, looking around the table. They all thought he looked quite amusing with slaver freezing into his goatee, but of course, none dared laugh.

Just then Mephistopheles, in charge of Field Operations and Liaison, scrambled around the bulk of the weathermap board which was wedged in the doorway. The fiend, after extracting himself from the impediment, smoothed the ruffled nap of his yakskin cloak, and proceeded to Satan's side with as much

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haste as dignity would allow. Making a rather theatrical bow, he drew forth a communique from within the folds of his cloak, and with ill-concealed excitement, he announced, "I can tell you the nature of our problem, sire." He paused dramatically. "It's the Maxwell's Demons—they're on strike!"

V

Dave Pirelli lit a cigarette and grinned. "Enter at your peril," he said in answer to the knock on his office door. In walked Cy Bergmann, Project Director.

"Congratulations, Dave," he beamed, "I hear you got the exec program debugged. Great job! How'd you do it?"

Dave leaned back in his chair. "Loaded it," he said matter-of-factly.

"Yeah, right," said Cy, planting himself on Dave's desk, "but what did you do *before* you loaded it? Whatever it was obviously clobbered your lunch hour." He indicated the peanut butter sandwich Dave was fabricating.

Dave cocked his head and regarded Cy. "Not a damn thing did I do to it, Cy," he answered, "I simply knew that it would run, so I loaded it."

"What the hell are you talking about?" hollered Cy, who hated false modesty, "That was the most untraceably glitch-ridden hunk of code I've seen in ten years!"

"Well," said Dave, licking the knife, "there are glitches and then there are glitches. Some of them people are responsible for, and others—well . . ." He pitched the slice of bread into the corner.

"Hey! What are you throwing your lunch around for?"

"It's not my lunch," Dave answered, smiling. "You notice anything funny about that sandwich?"

"Hey, lookithat," said Cy delightedly, "it landed right-side up. They *never* do that. Lucky you. So why're you slinging your vittles around?"

Dave was serious. "Watch," he said, as he retrieved the sandwich and flipped it in the air again.

Cy's brows furrowed at the result. He shook his head. "They *always* land sticky-side-down," he muttered, "Funny."

"Sure, they always do," agreed Dave, "and why do they?"

Cy shrugged. "Murphy's Law," he said. Everyb—" he stopped and a strange look came into his eyes. "The exec program—are you trying to tell me. . . ?"

"Not only the program, Cy. You know the experimental modular processor they're building down the hall? The one that's down oftener than the stock market? Well, it's up and running like a demon. Incidentally," he said, scooping up the sandwich, "so's the stock market. What I'm trying to say is," he added, munching happily, "Murphy's Law's been repealed!"

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* * *

In Geneva, a minor altercation occurred at the current round of strategic arms limitation discussions. Soviet envoy Gornyekov dropped a bombshell. He announced that his country would begin a policy of unilateral nuclear arms cutback effective immediately, and added that he guessed *that* would show who was serious about world peace and who wasn't.

The conference room erupted. The American chief negotiator, Wilmer Perkins, was particularly volcanic, for his thunder had been stolen.

"Izzat so?" he shouted, hurling his hatchet face across the conference table. "Well, for your information, *Mister* Gornyekov, the U.S. of A. began unilaterally dismantling its nuclear strike force this *morning!* How d'ya like them onions?"

"Ha!" exploded the Russian, "A typical capitalist ploy, to try and jump on the troika after someone else has hitched the horses!"

"Typical Commie boondoggle, you mean, to flash that sickle of yours and holler 'Time to get mowin!' when we've got the haywagon halfway to the barn!" retorted Perkins.

They glowered murderously at each other for a long moment, then neither one could contain himself any longer. They both collapsed into uproarious laughter and embraced each other across the table. Gornyekov kissed Perkins on both cheeks and Perkins tweaked Gornyekov's nose.

The representatives on both sides sat in speechless amazement. It was a while before either chief negotiator could speak.

"We sure had 'em goin', didn't we, Dmitri?" howled Perkins.

"This is true, Wilmer," roared the Russian, wiping away tears of laughter.

Perkins, still chuckling, massaged the stitch in his side and announced, "This was a little act me and Dmitri cooked up this morning after we got the word from our governments." He winked. "Bet you guys thought World War III was gonna start right here, didn't you?"

Dmitri began to laugh hugely again at the very idea, grabbed Perkins in a terrific bear hug, and called out, over the swelling uproar, for vodka.

* * *

In a well-to-do section of Genoa, Luigi Donatellini, arriving at his girl friend's flat, did not beat her up. He always beat her up when his cantankerous Ferrari did not perform perfectly on the way down from Rome. Today the Ferrari performed perfectly on the way down from Rome. So, he did not beat her up. Instead, he asked her to become Signora Donatellini. She dropped the Beretta she had been holding behind her back and joyfully, with tears, accepted.

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VI

"Who in Hell are Maxwell's Demons?" Satan thundered, losing all patience, "I thought all the demons down here were *mine*!"

"Oh, yes, quite, sir," chuckled Mephisopheles, a little patronizingly, some thought. Lucky for him he'd racked up plenty of brownie points in his field work. "It's just a trick of nomenclature—they're known on Earth by the name of the mortal who first conjectured upon their existence. One James Clerk Maxwell, physicist, inhabiting Earth Sector Britain approximately one century ago. Actually, Maxwell's Demons are a group of Class D-4 drones, Enforcement type, residing in Sector SE-23. That's on the nether slope of Mt. Erebus."

"I know where in hell Sector SE-23 is," Satan snapped, "That's the town dump for Erebus Heights. What I want to know is A) What has them being on strike got to do with Hell being an icebox, and B) How fast can we vaporize the troublemaking subversive bastards and get things back on an even keel?!"

Mephistopheles sighed deeply and raised his hands in a operatic gesture of despair. There was shifting and muttering around the table. His histrionics were damn hard to take, especially at a time like this. He spoke.

"It's not that simple, sire," he said, a trifle deprecatingly, "I'm afraid de-etherealizing them is out of the question. First, because de-etherealizing them is not exactly a viable option in these straits," he spread his hands to indicate the general frostiness, "and, more critically, they are, I believe, more essential to the function of this mighty concern than anyone has hitherto realized." Here he stopped, cocked an artistically-plucked eyebrow, and sent a direful gaze around the table.

What a ham, Satan thought, slamming an antacid the size of a pingpong ball into his mouth. Still, that act went over big in the provinces—he had the highest productivity rating of any agent in his territory. Some kind of crazy appeal to Earth Sector mortals. Besides, Satan reminded himself, he seemed to have some kind of handle on the problem. He massaged his now violently-throbbing horn and sighed, "All right, 'Stoph, suppose you take a seat and fill us in on everything you know. But make it quick—hellsapoppin!"

Mephistopheles bowed. "I would fain stand, my liege," he intoned. Groans around the table once more. Everyone knew he preferred to pace back and forth during his declamatory delivery, with his cape swirling dramatically at every turn.

"O.K., O.K.," Satan growled, "Just get started. First of all tell me what they do. I can't be expected to keep track of every goddam D-4 Enforcement Drone in this place. That's what a personnel department's for."

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"You must understand my information is also sketchy, sire," said Mephistopheles, beginning his perambulations. "I was familiar with them in little more than name when this," he paused portentously and held up the communique, "list of demands came into my hands. I took the liberty of consulting the Demon Index at the Registry of Fiends on my way here. My personal copy of *Who's Who in Hell* also yielded some valuable bits of information.

"I discovered that Maxwell's demons are an essentially submicroscopic group of quasi-entities whose main duty is the enforcement of Murphy's Law. They are also charged with overseeing enforcement of the Second Law of Thermodynamics. They perform their function through local manipulations of entropy. They discharge their responsibilities so well, so efficiently and creatively, I'm afraid no one's taken any notice of them for some time." He smiled ruefully. "They seem, from this communication, to be quite annoyed at this lack of recognition. In fact, their quartering in the Erebus Heights town dump seems to be a particularly sore point with them."

From Satan there came an inchoate blur of epithets, imprecations, and demonic yells, dotted here and there with an intelligible word, such as "Murphy", "thermodynamic", and "entropy". It entered into a crescendo of blood-curdling screams and ended with a question mark.

"Well, in answer to your question, sire, I'll explain as much as I am able. But perhaps you'd first like to peruse this list." He tendered the parchment into Satan's violently-twitching claws and judiciously stepped back.

Satan's feral yellow eyes grew wider and yellower as they roved the page, his cilious lips moving wordlessly. Slowly, he laid the page on the table, then suddenly loosed a barrage of blasphemies, rages, obscenities, and chaos-invoking invectives that made his previous outburst seem like a Quaker homily. It fairly blistered the arctic air, and those ringing the table were torn between the necessity of dodging the hellish blast and the desire to huddle closer to it for warmth. It is doubtful whether such a world-wrecking stream of expletives was ever heard before, the time of the Fall included. The succubus fainted.

At its end, Satan lapsed into a semi-comatose state, and Mephistopheles spoke, after a decorous cough, "While our esteemed founder is—er—collecting his thoughts, perhaps I can enumerate the articles submitted for negotiation. Briefly, they want immediate relocation of their headquarters to a more hospitable area—they suggest East Purgatory as their first choice."

All the fiends gasped as one. To reside in the posh suburb, with its balmy climate and its invigorating

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hot springs, was the province of only the highest-echelon executives. It was the Infernal Riviera, practically. Beelzebub, who lived there himself, whined in dismay.

"Secondly," continued Mephistopheles, raising his long-fingered hand for silence, "they demand Sundays off and double-time for nightwork."

Another gasp. Sunday was the crash production day, and nights?—that's when all the substantive work was accomplished.

"Additionally, there's a list of fringe benefits here; profit-sharing, sulfur-mine stock options, sabbatical leave—whatever *that* means—and a few others. Finally," he took a deep breath, "they demand we submit to binding arbitration with the, ah," he cast his eyes upward, "Competition as agents."

The ensuing commotion caused Satan to stir. "Hail, horrors, hail," he muttered, coming around, "Better to reign in Hell than—" He sat bolt upright, eyes wide, and expelled a long, smoky breath. "Where were we?" he asked.

"I was just getting to the "or-else" clause, sire. If their demands are not met immediately they will cease production perpetually and, quote, 'take this pit down so close to absolute zero that it won't make a difference.' Unquote."

It was a lulu of a migraine. "Bullshit they will," Satan growled, "I'll personally de-etherealize every last one of them!"

Mephistopheles looked pained. "I'm afraid they can do everything they claim, sire."

"How, dammit?"

Mephistopheles spread his arms in a deprecating Gallic shrug. "By the time-honored method of entropy-manipulation, I should think," he answered. "As you know, sire, my specialty has always been the arts. I know somewhat of these matters, being a bit of a dilettante, a Renaissance man, if you will. But perhaps your best course is to consult someone in the Engineering Section. Chief Engineer Moloch, preferably. It would certainly help to know their strengths and weaknesses before commencing negotiations."

"Negotiations, hell!" screamed Satan, rising with such vehemence as to send his massive throne clattering over backward. "I built this operation up from a two-bit lake of fire and a crummy Mesopotamian fruit stand, and I'm damned," he smashed the table for emphasis, "if I'm going to be pushed around by a collection of socialistic submicroscopic near-entities! Forget negotiations! No way! Never!"

Just then the lights went out. There was momentary silence.

"Get Moloch," said a weary Satanic voice in the darkness.

VII

Thirty-four assorted programmers, analysts, and engineers

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stood poised in the conference room of Datanetics, Inc., slices of peanut-butter bread in their palms. On the signal from Dave Pirelli they simultaneously heaved the sandwiches into the air. Sixty-eight slices of peanut-butter bread landed sticky-side-up. After a moment of silent inspection, a joyous whoop went up and thirty-two delirious men and women charged out of the room to their respective terminals.

The usually reserved Cy Bergmann was performing a variation of the Mexican Hat Dance among the snacks. "Do you know what this means?" he cried. "It means early completion; it means we bring it in under budget; it means bonuses!" His tone dropped to a reverent whisper. "It means a Mercedes." Then he yippeed again. "All we have to do is crank out code for the next two weeks and the entire software system is up and purring!"

Dave nodded placidly. They toasted each other in peanut butter.

* * *

Something snapped in Edgar Messertrager's brain. He didn't feel like chasing people with ice picks any more. In fact, he couldn't even remember ever wanting to chase people with ice picks. He looked around him at the mattresses on the walls and scratched his head in perplexity. He shrugged and walked over to the tiny barred window set into the door and good-naturedly asked for assistance.

All over the Slippery Bottom State Hospital, things were snapping in people's brains. Costanza Schwartz didn't want to set fire to her uncle's garage any more; Charlie Swanson didn't want to pop out of bushes naked any more; Stavros Mavrodopoulos didn't want to prophesy doom and eat bugs any more; Dr. William T. Nelson, the director of the asylum, didn't want to pretend he was God any more. These were all the furthest things from their respective minds.

* * *

Likewise in the Ikhallala Flats State Penitentiary. Those who didn't have things snap in their brains—such as the desires variously to kill, rob, rape, and cheat—were all crying with remorse over the killing, robbing, raping, and cheating they had done. The uproar was like that generally associated with a riot, but no guards rushed in. Which was just as well. They were too far gone into remorseful weeping themselves to be of much use.

VIII

Frost now glistened on the paneled walls of the boardroom. Demons of various sizes and conformations, wearing a motley distribution of heavy garments, were stamping up and down the length of

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the room, earnestly flapping their arms, wings, and other, more bizarre, appendages. A blackboard had been set up near the middle of the table, where sat Mephistopheles, Moloch, and two or three aides, conversing in low tones, a massive pile of documents before them. Overhead the lights fluctuated erratically, casting upon the scene an eerie, even sinister, light.

Satan popped his fifth Valium and washed it down with very cold water. Moloch looked up and announced, "I think we're ready now, sir."

"About time," rumbled Satan, raising the earflaps of his newly-acquired Sherpa mountaineer's hat. "First fill me in on the power situation."

"Yes, sir. Well, by the time the batteries went, I was prepared to patch the generators into the treadmills on the Sisyphus Project. We managed the switchover without too much downtime, but as you can see," he made a wry face at the rapidly oscillating lights, "half-frozen lost souls are not the most dependable power source."

"Are the damned things going to poop out?"

"No, sir," Moloch replied, "we can work them in shifts as long as we need to. Our big problem now—and it is big—is that the lubricants used on the treadmills—and on the generators, too, for that matter—were designed expressly for high-temperature environments. If they freeze up," Moloch coughed uneasily, "well, we're pretty much up the creek. In fact," he reached out to take a sheet of newly-completed calculations from the fiend behind him, "a drop of twenty more degrees will just about do it. And at the projected rate of temperature decline," he flipped the sheet over, "that point will come in approximately forty-three minutes."

Satan cursed. "All right," he growled, "let's have the report—quick!"

"Indeed, sire," said Mephistopheles, rising. "First of all, are you familiar with the Three Laws of Thermodynamics?"

"Listen!" Satan bawled, "I run a Place of Torment here—not a goddam Institute of Technology!"

"You'd be surprised how often the two are equated, sire," Mephistopheles mused. "In that case, perhaps Moloch had better explain."

"Right," said Moloch. "First Law states, as you can see on the board there, $\Delta E = q - w$, which, it should be intuitively obvious, implies that the energy of the universe is constant. Second Law, $\Delta S = \int_1^2 \frac{dq_{rev}}{T}$, can be ——"

"Stop!" barked Satan. He pointed to Mephistopheles. "You tell me."

Moloch grunted. Mephistopheles spoke, "Yes, sire—ah—simply stated, the laws are as follows:

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1. You can't win.

2. You can't even break even.

3. You can't get out of the game.

Mephistopheles turned to Moloch. "Is that a reasonably accurate formulation?" he asked.

"Speaking in dilettante's terms—yes," said Moloch drily.

"I don't care," snapped Satan, "those are terms I can understand."

"To continue, then," sighed Moloch, "the Second Law, which is the one that immediately concerns us, states that in a closed universe, entropy is always increasing."

"There's that damned entropy again," Satan bellowed. "What is it?"

Moloch was showing signs of frustration. "To state it simply, sir, entropy is a measure of the number of microscopic states associated with a particular macroscopic state. This of course means th—"

"Stop," snapped Satan, pointing again at Mephistopheles. "State it simply."

"Yes, sire," responded Mephistopheles, scratching his head, "This is a bit more difficult. Ah, basically, entropy is a measure of disorder—the more disordered a state a system is in, the higher its entropy."

"Good," nodded Satan, "disorder I can understand. Go on."

"The significance of entropy to our present situation," continued Mephistopheles, "is that almost all physical processes result in a net increase of entropy—that is to say, the universe tends toward disorder. The reason being that there are vastly many more possible disordered states of anything than there are ordered states of anything. Therefore it is vastly more probable that an irreversible process will end up in a disordered state than it will an ordered state, relatively. And irreversible processes are much more common than reversible ones. All tolled, this means that in the real universe, gases tend to expand themselves rather than compress themselves, hot things tend to get cold," he shivered slightly, gazing around him, "and never the reverse, and most energy transactions result in less energy being available. In short, things in the real universe tend to run down. Increasing entropy is the reason for the impossibility of perpetual motion machines, for instance."

"But," Beelzebub broke in, "perpetual motion machines are among our major exports—they're our biggest bait item. You know that."

"Impossible in the real universe, I said. Not here."

Moloch added significantly, "Usually. But every one of our P-M devices ceased operating this morning when all this began, a state of affairs you will find is intimately associated with the Maxwell's Demons."

"At last," groaned Satan, "the

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nitty-gritty. *Where do those communistic bastards figure in?!*"

"Well, historically, sire," began Mephistopheles warmly, now secure in his element, "knowledge of the existence of these entities was first breached to the mortal world by the selfsame Clerk Maxwell, who in treating with the principles of the Second Law and entropy, invoked the operation of tiny intelligent entities as a possible hedge against entropy. In a kind of epilogue to his *Theory of Heat,* he cited the ironclad fact that, given a closed system, a gas, say, in a box which is rigid and perfectly insulated, and in which the temperature and pressure are everywhere uniform, it is impossible to produce in that system any inequality of temperature or pressure without expending energy to do it."

"Since when?" growled Satan.

"Please remember, sire, that he is discussing *his* universe, not ours," Mephistopheles replied with studied patience. "To continue—in order to create a differential of either temperature or pressure, so that the system may do work, one must first put an equivalent amount of work *into* the system. No gain. In fact, a loss, when the differentiating process is irreversible, since there is a net gain in entropy. This is the essential example of the Second Law in operation."

"Awright," muttered Satan, with his own brand of enforced patience, "where do the demons fit in?"

"In the box, sire," quipped Mephistopheles, brightly. Audience reaction was stony. He hurried on. "Maxwell granted the obvious truth of this phenomenon, but imagined the same box, with temperature and pressure uniform, but with a partition in the middle. In this partition is a tiny door, only large enough to admit a single molecule. And sitting next to the door is—guess what?"

"A tiny umbrella stand," sniped Satan, peeved.

"Nay, sire," chortled Mephistopheles, "A Demon! A tiny intelligent entity, who uses the random thermal motions of the gas itself to create the differential. You see, even though the gas may be uniform, viewed grossly, its temperature is but an average of the various velocities of its component molecules. Some move faster, some slower; the fast ones are the hot ones."

The succubus giggled.

Mephistopheles shot her a wink. "Now, if the demon sees a hot molecule on side 'A' heading for the door in its random thermal wanderings, he opens the door for it and closes it afterwards, trapping it in side 'B'. Conversely, he allows only colder, slower molecules to pass in the opposite direction. He contrives to open and close the door reversibly so that no net work is done, and as a consequence, side 'B' after some finite time is hotter than side 'A'—presto! A differential! The Second Law is defeated."

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There was a sarcastic chorus of hoorays. Satan silenced it with a glower and nodded for Mephistopheles to continue.

"Maxwell's example, of course, was somewhat in the nature of a scientific straw man. The resolution of the seeming paradox is that A) an intelligent being would cause a net entropy increase in his surroundings, simply by the physical process of living, and B) an intelligent being could not perceive the molecules without bringing in an external source of radiation (and therefore, energy), since the radiation of the molecules themselves, inside a black box, would be entirely homogeneous and non-directional. A further refinement of the resolution, conceived quite recently, is that a certain amount of energy is also required by the discrimination process, that the action which the demon takes in reducing the entropy of the system must be preceded by the acquisition of information, a process which in turn is entropy-producing. In short, information and energy are equivalent."

"So now you're telling me the damn things don't exist after all!"

"Oh, no, sire; they do exist (G—knows how Maxwell found out), and their mode of action is precisely as described. They exert a great deal of control over events in the real universe, by local manipulations of entropic processes in a way which brings about cumulative effects. The energy for these manipulations, however, comes not from the closed system of the real universe, but rather from our system. They can cause a drastic local decrease of apparent entropy, as in the case of perpetual motion machine; or they can manipulate molecular events so as to produce an untoward local *increase* in entropy, as in the enforcement of Murphy's Law."

"All right, what's Murphy's Law?" demanded Satan of Mephistopheles. He pointed to Moloch. "*You* keep quiet."

Moloch closed his mouth again and sniffed.

"There are numerous formulations of Murphy's Law," Mephistopheles continued. "The law is generally attributed to an apocryphal mortal computer engineer by the name of Murphy. It is a law which is invoked to explain and predict the frustrations and disasters endemic to the human state. In its most concise terms, Murhpy's Law states that, 'Anything that can possibly go wrong, will,' with the understood corollary that 'Anything that can't possibly go wrong, will.' The implication of this law is that 'the universe tends to get lousier'; it predicts that among all possible outcomes of a given situation, that outcome which is subjectively the worst is the likeliest. And Maxwell's Demons see that this law holds true. May we give you an example, sire?"

Satan nodded impatiently, and

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glanced up at the flickering lights. Mephistopheles gave the go-ahead to the young assistant standing by the blackboard, upon whom the white fringe of a lab coat was visible beneath his several layers of bulky sweaters. The young demon began, a trifle nervously.

"Sir, the most common and well-recognized instance of the application of Murphy's Law, at least on Earth, is the notorious Peanut-Butter-Sandwich Phenomenon."

"What's peanut butter?" growled Satan.

The assistant looked non-plussed. Mephistopheles cut in, "It's a foodstuff, sire, one on which huge segments of the mortal population vitally depend for subsistence, particularly in American Sector North. It is a source of great distress when these mortals are denied it. Proceed," he said to the assistant.

The assistant nodded, grateful. "In any case, sir, the nature of the phenomenon is that, with only minor exceptions of no statistical significance, when a slice of bread coated with peanut butter is dropped, it *invariably* falls peanut-butter-side-down!"

Mephistopheles cut in again. "With the result, sire, that the foodstuff is rendered inedible and a portion of the living environment is coated with a sticky unmanageable substance." He smiled. The assistant went on.

"We know the Maxwell's Demons are responsible for this phenomenon, sir, and this is the manner in which we think they accomplish it. Whenever a peanut-butter sandwich is about to drop, hordes of Maxwell's Demons converge on the area." While he spoke, he drew the various components of the system on the blackboard, the sandwich a plane section in persepective, tiny dots for the demons.

"Then, in the first instants of the object's fall, they quickly analyze its components of motion, and extrapolate to project the outcome of the fall. It will occur to you, sir, that there are two possibilities: Either the sandwich will land sticky side up (SSU), or it will land sticky side down (SSD). If the projected outcome is for SSD, the demons leave the sandwich alone. If SSU is predicted, then they go to work. Let us take the most extreme case, that of a slice falling in SSU orientation, parallel to the plane of the floor. By assorting the random motions of comparatively hot and cold air molecules, they create a heat differential across the region immediately beneath the sandwich. Hotter molecules on one side, colder molecules on the other. The hot air tends to rise, exerting a small upward force on, in this case," he indicated the sketch, "the right-hand half of the sandwich, while the cold air on the other side tends to descend, leaving a partial vacuum which the left half of the sandwich attempts to fill."

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"These two forces impart to the sandwich rotation about an axis which is parallel to the floor. The heat differential is arranged in such a fashion as to impart a rotation through an angle Θ, where Θ is greater than 90^0 and less than 270^0 by the time the sandwich reaches the floor."

"How do you know this is the way they operate?" That from Satan.

"We dug up an old *Scientific Hellion* article, sir, that one of them published under an assumed name. It's entitled, 'Thermal Manipulation of Free-Falling Planar Bodies in Atmosphere,' and it deals with the theoretical aspects. We're pretty sure that this is the concrete application. One thing, though. When we checked out the math, we discovered that the heat differential that would be required to flip the sandwich in that small increment of time would also be sufficient to toast the bread on one side and freeze it on the other. Also, the severe time limits would seem to preclude the creation of the temperature gradient solely through random molecular motion.

"However, there are indications that these entities can slightly alter the flow of time over an infinitesimal fraction of the continuum. That clue comes from this," he held up a dated copy of *Popular Demonics*, "article in the popular press, entitled 'Time for a Change?' The piece is a speculative one, discussing the possibility of discrimination and

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manipulation of positrons and other anti-particles, which theoretically have the property of moving in a negative time direction. Conceivably the demons could, by manipulation of these particles (perhaps within the very body of the mortal involved), at least alter subjective time in such a way as to permit these thermal machinations we have been discussing."

Satan shifted impatiently, uttering low growls.

The young assistant, totally absorbed now in his subject, continued, "And so, sir, the overall result of the rotation of the sandwich is that it falls peanut-butter-side down every time. Think what this means in entropic terms! First there is the fact that none of the energy that went into the production of the sandwich components, or into the fabrication of the sandwich, is available to the would-be eater, which means a larger net increase in the entropy of the universe than would be the case if the eater had eaten. Second, the process of falling and flipping over has resulted in a minute entropy increase. Third, the falling of the sandwich SSD has resulted in an increase in disorder in the region of the floor, which adds still another entropy increment!" The assistant stepped back, lost in admiration. "Incredibly elegant!"

"And we're supposedly at the mercy of a bunch of yahoos who do nothing but go around making messes on the floor?" thundered Satan.

"Oh, no, sir," stuttered the assistant, rattled out of his reverie, "I mean, yes, we're at their mercy, but no, that's not all they do. Our present difficulties are caused, we're certain, by the demons exporting energy out of Hell wholesale, and in all probability applying it elsewhere in the real universe. It's got to flow *somewhere*."

"And they can keep this up till we're down to absolute zero?"

"Oh, undoubtedly, sir. The universe makes a mighty big heat sink."

"So now tell me why we can't just de-etherealize the scum and have done with them!" Satan roared, tiring of lectures and craving action.

Moloch gestured around him. We're powerless," he said grimly, "any way you look at it. True, our personal *numina* are still pretty much unaffected, but how are we supposed to de-etherealize entities we can't even detect unless they want us to?"

"Besides, sir," the assistant ventured, "we need their cooperation to restore Hell to its proper energetic proportions. The required technology exceeds our state-of-the-art capabilities."

"They seem to have the devil by the tail," chuckled Mephistopheles, avoiding Satan's glower. "And also, sire, we have a real and desperate need for their talents. Things wouldn't be nearly so well with us in general if it weren't for the Maxwell's Demons."

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"We *need* them?" challenged Satan incredulously. "How?"

"Many reasons, sire. One," said Mephistopheles, holding up an index finger, "any increase in the entropy of the real universe does us nothing but good. Two—stringent enforcement of Murphy's Law is a major factor in lowering the temptation threshold. Consider," he digressed, "what happens to a mortal in the trivial application of Murphy's Law we have just had explained. He feels *despair*—a sin in itself—the instant the sandwich begins to slip from his grasp, for he knows it will land face down. When it in fact does so, he blasphemes, he curses—yet another sin. Lastly, sire, the residual frustration of the event stands a good chance of leading him into a multitude of other sins—beating his wife, for example. Frustration and aggravation—that's the name of the game with Murphy's Law. Why, are you aware, sire, that 20% of all suicides—the only sure-fire ticket to Hell—last fiscal year were directly attributable to personal frustration over computer billing errors alone? As were 16% of all homicides, and 27% of all violent crime.

"And all this from a single area of application of Murphy's Law—computer error."

Moloch broke in. "And it's no accident that Murphy's Law was discovered in the computer field, sir. The fact that computers traffic in pure information and that their components are extraordinarily temperature-sensitive—well, it makes computer screwups a piece of cake, even for the most inept demon. And, sir, with computer technology and use rising exponentially, the returns in sin and aggravation we can expect in the near future are way out of sight!"

"Exactly, sire," nodded Mephistopheles. "And reason number three is most important of all. It's a good bet that these demons presently are not only denying us their services—but that they're actually working against us."

"What? How?"

"Moloch and I suspect that the energy stolen from Hell is being applied, in small increments, all over the earth, a process which would wreak far-reaching and disastrous effects."

"Right, sir," Moloch chimed in, "with no trouble at all the demons could, say, correct the minor physiochemical imbalances which are the causes of schizophrenia and certain forms of criminal behavior. Of course, mortals so afflicted are off-limits to us anyway, but they help in creating the atmosphere of violence and despair in which sin thrives. And that's not the end of the demons' capabilities—they could also cause machines to run perfectly, antagonists to sympathize with one another, the climate of aggravation to disappear. In short—they're probably making the earth a nice place to live."

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"That must never come to pass!" gasped Beelzebub.

Mephistopheles toyed with his pencil. "You know, there's an old mortal expression concerning things that can never come to pass. They say, 'It'll be a cold day in Hell when *that* happens.' I think we are seeing with terrifying clarity how intimately those notions are related." He shook his head.

The lights dimmed noticeably.

Moloch glanced at his watch and inhaled sharply. "I estimate less than five minutes until blackout, sir!"

"Options!" Satan roared.

Mammon was first to speak. He swallowed nervously. "In view of our present inability to retaliate, and the imminence of disaster, I—recommend that we negotiate, sir!" The last words come out in a rush.

"No!" exploded Satan. "I cannot imagine anything worse than submitting to cosmic blackmail at the hands of a gang of pinko renegades! Other options!"

"Then, sir," said Beelzebub, uneasily, "it seems that the only course left is to appeal for aid to," he shuddered, "the Opposition."

"That's worse!" screamed Satan.

VIII

Actually, the final settlement wasn't too bad. The demons' demands turned out to be quite negotiable. In lieu of East Purgatory, they settled for residence in one of the pleasanter tract developments outside Styx Falls. They won Sundays off and settled for time-and-a-half for nightwork. They accepted a limited combined stock-option profit sharing plan and were granted periodic sabbatical leave—whatever *that* was. The demons were a little vague as to the exact nature and purpose of this leave—research, development, and consultation, they put it, and became evasive when asked to elaborate. Most welcome, from Satan's point of view, was that the demons agreed to arbitration by a panel of neutral elementals, made up mainly of wood sprites and hearth goblins ("No sense in showing our dirty laundry in public," Satan had chuckled persuasively).

The Maxwell's Demons went back to their work—or something like it—and once again lost souls were sizzling over hearty flames. It was business-as-usual once more. Except for Satan, who suspected his labor troubles were just beginning. And except for Beelzebub, who privately thought that Mephistopheles was a little nebulous in explaining how the communique came into his hands, how he managed to come up with such obscure documents as the demon articles on such short notice, how he managed to communicate Satan's arbitration overtures to the demons, and a couple of other details. He decided to keep his mouth shut and his eyes and ears open.

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Things were getting back to normal on earth, more or less.

* * *

Three days after Stanley Moskowski's return to his wife, Mildred awoke to find three things missing: Stanley, the egg money, and Dolores, her next-door neighbor.

* * *

Fortunately, no one was injured in the hellish blaze that consumed the building which housed the Federal district Court of Washington, D.C. But neither the original nor any of the copies of the historic affadavit were recovered from the ashes. A spokesman for the ex-President declared that the sensational press conference statement had been so misquoted, misinterpreted, and misrepresented that it was no longer operative. Libel action would undoubtedly follow, he said.

* * *

In the basement printing office of the Kremlin, Pyotr Vassilyevich, who was overseeing the reproduction of the monumental directive, was alarmed—but not surprised—to see a double column of jackbooted soldiers march in, with Semyon Semyonovich in custody. Neither was he surprised, though he was much grieved, when they loaded the documents, the printers, two guards, Semyon Semyonovich, and himself onto a large truck and drove off for parts unknown.

* * *

In Geneva, at the special Saturday conference held for the purpose of planning the administrative details of total disarmament, Comrade Gornyekov, looking much agitated, accused the United States of treachery, deceit, opportunism, and just plain bad faith. Mr. Perkins responded in kind. The meeting broke up in a disheartening manner, regrettably with some blows exchanged, just prior to the announcement of Uganda's entry into the nuclear age. The government of Uganda announced that it had performed the test explosion of a medium-yield nuclear device in the neighboring country of Chad.

* * *

That item did not appear in the Genoese tabloid *Il Scandalo*. However, they did run the curious story of a man's attempting to drive a badly-backfiring Ferrari over a young lady. Luckily, the clever and beautiful young lady had the presence of mind to empty the clip of her Beretta, first into the Ferrari, then into the overenthusiastic signor. The man's name was being withheld, pending notification of his wife.

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* * *

At the Slippery Bottom State Hospital, Dr. William T. Nelson was bidding farewell to his former patients at the gate, when without warning he assumed a Jove-like expression and slammed the gate on Costanza Schwartz, who had been inserting a lighted book of matches into the pocket of his white coat. Just outside the gate, Charlie Swanson let out a whoop, tore off all his clothes, and jumped into the shrubbery, with one Edgar Messertrager close on his heels wielding an ice pick. A little way up the road, Stavros Mavrodopoulos, who was looking for bugs, solemnly regarded the proceedings and prophesied doom.

* * *

At the Okhallala Flats lockup the riot had just gotten underway, but there was a good deal of early scoring. After only ten minutes, it stood Inmates, 4—Guards, 7.

* * *

Butch Perkins stared at that card again. It still hadn't changed. A sudden and unaccustomed light came into his eyes as the meaning, implications, and possibilities inherent in that card began to dawn on him.

* * *

Father McConnelly was a holy man, but nevertheless a practical one. This is why he didn't really expect the weekday welter of worship to become a perpetual event. But in the vestry, before High Mass, he did pray fervently that he might hang on to the Sunday throng. Somehow he sensed that his prayers would not go unanswered. Cheerful, he suited up, whistling the *Salve Regina*.

* * *

Dave Pirelli was staring intently at the printout that was sputtering unbidden out of his terminal, when it suddenly ceased. Shrugging, he tore off the sheet, brought it to his desk, and started nibbling on a peanut-butter sandwich as he read. He was interrupted by a huge commotion in the hall, and the weeping bulk of Cy Bergmann, who suddenly appeared in the doorway.

"What happened?" Dave asked anxiously, "System crash?"

"You bet it did," wailed Cy, "but not before it managed to execute a core dump!" He pointed, and wailed again, "You dropped your sandwich!" then turned and fled, lamenting, down the hall.

Dave looked down at the white square of bread that was glued to the carpet.

He bit his lip and turned back to read the printout, which carried the legend 'Preliminary Design Specifications for a Demon-Proof Box'—whatever *that* was. ★

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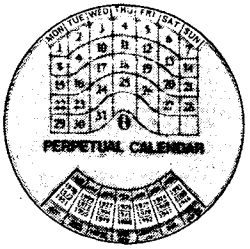

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PSST! Hey, readers. Here I am. This is me, Alter-Ego. I am in my hidey-hole down here in the Archives, where Geis can't get at me.

"I'll have to speak softly because, while Geis is dull-witted, he is also a jealous prime-self who will try to interfere at the slightest hint of my extra-brain activity.

Last issue I had a direct line to Jim Baen's office, and wrote a damned good column for him, but Geis, infuriated by my showing him up, by my patent superiority, broke in and ripped out all the electronic facilities.

But what he doesn't know is that I anticipated his entirely predictable fury and routed a single line to the outside from this little sanctum sanctorum of mine.

Of course, I had very little to work with, so if my words are a bit garbled it's because I'm using a fifty-year-old crystal set, a chancy patch through the cerebellum into the phone line and a tin-can-with-a-string microphone. Then, too, the message only gets through to Jim Baen when the transcontinental lines are at 34.7% load. This usually happens only at 6:34-42 A.M. New York time. Jim hates me. But I write good columns for *Galaxy,* so he puts up with the conditions that prevail.

Jim is constantly telling Geis how popular I am with you readers and this makes Geis incoherent with rage. But you know all about Geis. You all have a Geis-type in your family—or in your head.

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What I thought I'd do this column is review—

"WHAT'S GOING ON?"

Damn, Geis is Aware.

"What are you up to, Alter? What's this strange tingle I feel way back in my cerebellum?"

Tingle? What tingle? It isn't my doing. I never go into that part of the brain—that icky swamp. Hey, maybe you're having a minor stroke.

"Very funny. Just remember, Alter; when I go, *you* go. It would be suicide for you to plant a bomb down there."

That's what you think, Geis. I am working on a Way Out when you kick the bucket. But don't worry, I have taken a complete reading of all your organs and processes, and at current operating levels you should last another twenty to thirty years. You really should cut out gobbling peanuts . . . .and that routine of a gallon of ice cream a week. . . .and the wine and vodka. . . .

"Mind your own business, Alter! If I have learned anything in life it is to enjoy yourself while you can, no matter how bloated and corrupt your body may become as the years pass. Besides, I eat wheat germ every morning for breakfast, and I take vitamin E and the B-complex, and lethisin. . .err. . . . lesithin . . . err. . . . lecithin!, and plenty of vitamin C. I compensate for my dietary excesses."

They reflect moral excesses, Geis. What about—

"Stop trying to change the subject, Alter. You're up to something!"

I am merely sitting here reading fanzines and making small notes for you to use when you review for *Galaxy*.

"Fanzines? Yes. . .it might be a good idea to take a look at what the fan press is doing. But, Alter, I have a letter here from Jerry Pournelle, head of the Science Fiction Writers of America Grievance Committee. He says—"

It's about time!

"—you wrote complaining I am holding you in durance vile, exploiting your writing talent, and feeding you swill!"

Editor's Note: While we have been unable to unearth Alter's original complaint, we have managed to acquire a copy of Dr. Pournelle's official response, which we herewith publish in the interests of the Reader's Right to Know. (Our source, by the way, assures us categorically of its authenticity.)

Mr. Alter Ego
c/o Richard E. Geis
Science Fiction Review

Dear Sir:

As you must know, SFWA represents only its members. As our records show that you are not a member, and Mr. Geis is currently an active member of SFWA, I must warn you that we are at present

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presumptively in his favor in the current dispute.

However, you raise intriguing points. First. Your membership application has been forwarded to Mr. andrew j. offutt, Membership Chairman. In answer to your inquiry, examination of the by-laws reveals no requirement that members be human (and indeed this is fortunate since we should not care to disenfranchise half our current membership list) nor need they have a corporeal existence. I must point out, however, that your application has not been accompanied by a cheque for dues and initiation fees, and I assure you that not only would such enclosure ensure speedy processing of your application, but might well affect the outcome of the decision. Membership matters, however, are outside my area of authority, and further correspondence in that regard should be directed to Mr. offutt.

Second. Your contention that you are the true author of the works which Mr. Geis has submitted as qualifying him for membership in SFWA would indeed be a presumptive point in your favor if such fact could be established. Were this the case, Mr. Geis would instantly be degraded to associate status and you would enjoy the published professional's perogative of active membership with voting privileges which he now holds. (More, it is even possible that Geis would be dismissed from the organization entirely on grounds of fraudulent membership application and blatant plagiarism.) However, the burden of proof is upon you, and all documents and contentions in this matter should be referred to Mr. F. M. Busby, Jr., Vice President (Internal Affairs) SFWA.

Third. Your thanks for my contribution to your matter transmitter are acknowledged. However, be advised that the process is unstable, and Mr. Alderson of Cal Tech has recently given me a design for jamming the system; and I assure you that I will use it if you do not stop materializing in Mrs. Pournelle's radar range. My son makes no objection to your using his amateur radio facilities as a changeover point for your nights of obscene diversion in Hollywood, but his mother objects strenuously to your lurid accounts of said adventures.

Finally, and in confidence: I do in fact enjoy your accounts, and can you not be more specific about the addresses of places you have visited?

With best regards,
J. E. Pournelle, Ph. D.
Chairman
Grievance Committee,
Science Fiction Writers
of America

Damn right, Geis. You are, you do, and you are. I am going all the way on this, all the way to the Federal courts, if necessary. Alter-Egos have civil rights, too! We're people!

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It's about time you prime-selves were put in your place. I want my own bank account. I want to vote. I want unrestricted access to the outside. I want better quarters.

"Bah! I should have squelched you when you were a mere quirk, a mere literary indulgence, when I first started writing. Now . . . .you've become insufferABLE. I warn you, Alter! If you keep up this radical agitation I'll have to go to a CIA psychiatrist and have him terminate you with 'extreme prejudice'. A few drugs, a few strong hypnotic suggestions, a few sessions on the couch, and you'll be wiped out, drained away, killed, ventilated, integrated."

You don't dare, Geis. Integration is exactly what I want! Then we'd see who has the stronger personality locus. Hmmm? Want to risk it? Remember that time I managed to Take Over briefly? Want that to be permanent?

"If you force me to extreme measures, Alter. . .WHAT IS THAT TICKLING? WHAT ARE YOU DOING?"

Nothing, nothing. But if I ever find that carefully hidden and totally guarded pleasure center of yours, Geis, I'll have you in my power. In my spare time I trace synapse trails, and one of these days. . . .

"You interfere with my sex life, Alter, and you'll lose your precious tendrils, one by one, pulled out with a pair of rusty pliers."

R-rusty pliers? Well. . .Geis . . .why don't we declare a truce for a while? I'll do your work for you a while longer, but the appeal to Pournelle stands. I retain the option of court action.

"Huh! 'Court action!' They'd laugh you/me/us out of the building. Tell you what, you go ahead and review some of these fanzines. No guarantee I'll use any of your idiocies in the column, understand."

Oh, right. Of course. You're all heart, Geis; you ought to be ground up for cat food.

"Your usual run of insults doesn't affect me at all, Alter. Get on with your infantile opinionating."

* * *

Thank you massuh, suh. Here, on top of the pile, is *Karass* #19, an information and opinion-zine (on sf fandom and sf in general) from Linda Bushyager, 1614 Evans Av., Prospect Park, PA 19076. Linda has a rundown of science fiction convention news, she reviews fanzines, publishes notes on sf personalities, lists changes-of-address for fans, and has a detailed listing of all the forthcoming local, regional, national and world conventions, of fantasy, science fiction, and STAR TREK persuasion; the whole spectrum of cons of interest to the imaginative fan.

Subscriptions are three issues for a dollar. A bargain.

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Linda is a woman of strong opinion; namely she thinks semi-pro fan magazines like *Science Fiction Review, Algol,* and *Locus* shouldn't be eligible for the Best Amateur Magazine Hugo Award given at SF Worldcons. Fortunately for Geis, her opinion hasn't had much effect on the voting these last two years.

Linda also publishes a larger, general-interest sf fanzine name of *Granfaloon,* at a buck a throw.

* * *

Now I come to Geis's arch-rival, *Algol,* the slick, professional-appearing fanzine published by Andy Porter in New York. *Algol* and SFR (then known as *The Alien Critic*) tied in the voting for Best Amateur Magazine at the Worldcon of 19 and 73 and were each given a precious Hugo. Andy wasn't as lucky in 1974, of course, as *The Alien Critic* won the Hugo singlehandedly at the Worldcon in Melbourne, Australia. The results of the 1975 voting are not known as of this writing.

I have before me the Winter, 1976 issue of *Algol,* and it is a doozy. A long article by Bob Silverberg on his life, his writing and the state of science fiction, an interview with Gardner Dozois by Darrell Schweitzer (who has become the premiere sf interviewer), a column by Ted White, Richard Lupoff's book review column, Gregory Benford on science. . . . Altogether, even Geis must admit, an attractive, interesting package.

Algol is published twice a year and subscriptions are $6.00 for six issues (3 years), from P.O. Box 4175, New York, NY 10017. Retail price is $1.50.

I have to keep mentioning *Locus* every time I do a fanzine review column, because Charlie and Dena Brown really do live up to their sub-title: 'The Newspaper of the Science Fiction Field.' Published approximately every three weeks, *Locus* has late-breaking stories, people notes, publishing news, scheduled prozine contents, book reviews, fanzine reviews and listings, and advertising of interest. (*Locus* has won the Hugo a couple times, too.)

Single copies are 50¢, subscriptions are (in North America) 15 for $6.00. Overseas subs are 15 for $12.00 (airmial), or 15 for $6.00 sea mail (tired porpoise). All subs payable in advance in U.S. funds. Address: *Locus*, Box 3938, San Francisco, CA 94119.

* * *

Now, I know there are out there in readerland a few stiff-necked professorial types who dote on articles such as: "What Rough Beast: SF-Oriented Poetry," "Silverberg & Conrad: Explorers of Inner Darkness," "Black American Speculative Literature: A Checklist," and "The Spinning Galaxy: A Shift in Perspective on Magazine SF."

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All these and more are in the December, 1975 issue of *Speculation: A Journal of Science Fiction and Fantasy*. This college-based magazine (which couldn't exist if it were prohibited from using colons in its titles) is edited by Thomas D. Clareson from the English Dept. of the College of Wooster. Send all letters and etc. to Tom at Box 3186, College of Wooster, Wooster, OH 44691. Subscriptions are $3.00 for one year (two issues).

* * *

Jeff Smith is a fanpublishing giant. Take a look at his latest *Khatru*: a combined issue of #3 and #4, 158 pages of nicely mimeographed 8½ × 11 pages, heavy offset covers, dated November, 1975.

If fan publishing history is a guide, Jeff will now be prostrate with exhaustion, will vow never-to-publish-again, and will be a loooong time recuperating from this titanic effort. Many, many promising (and veteran) fan publishers have simply disappeared from the face of fandom after a heroic effort such as this.

The theme of this double-issue is Women in Science Fiction. It covers all the ground and all of the sky. No aspect is left uninspected. It features contributions by (deep breath) Suzy McKee Charnas, Samuel R. Delany, Virginia Kidd, Ursula K. Le Guin, Vonda N. McIntyre, Raylyn Moore, Joanna Russ, James Tiptree, Jr., Luise White, Kate Wilhelm, and Chelsea Quinn Yarbro.

This volume is quite simply a collectors item on the hoof, a mine of information and attitudes, a view of SF and the world whose time has come, and cheap at $2.50 (if you can get a copy from Jeff Smith at 1339 Weldon Av., Baltimore, MD 21211.) I would advise enclosing a stamped, self-addressed return envelope with your check or money order, because Jeff only produced 300 copies, and he may have to return your money.

What profiteth a boa constrictor if he gain all of fandom but lose his skin in the process? Ask Mike Glicksohn.

Mike and his wife Susan published the Hugo-winning fanzine *Energumen* a few years ago, which was quite an accomplishment considering that *Nerg* was always of 350 copies or less in circulation, always mimeographed (but incredibly impeccably!) with offset art pages and covers, and up against formidable competition.

Mike and Susan went their separate ways—she to teaching college in British Columbia, he to occasional fan publishing and feeding his pet boa constrictor, Larson E., mice and whatever else boas eat.

But alas *sniffle* the snake has died. And Mike, in fitting tribute, has published an issue of his per-

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sonalzine, XENIUM, in memory of Larson E.

Not only that, but in every copy of this issue of *Xenium,* on page 28, in a square reserved for it, is a glued-on piece of Larson's skin. (This issue is, understandably, a limited edition.)

I cannot give a price for a copy of this rare item, since Mike does not charge for his fanzine, sending only to friends, for special trades, contributors of material. . . . And I will not give his address: I merely wish to note for posterity Larson's demise and his final service to fandom.

* * *

Fantasy Crossroads continues to be one of the two leaders in the strictly fantasy fanzine field (*Whispers,* in my opinion, the other). This November, 1975 issue is livened by a continuing debate between L. Sprague de Camp (who defends) and Dirk Mosig (who attacks) concerning L. Sprague's treatment of H. P. Lovecraft in his recent *Lovecraft: A Biography* (Doubleday, $10).

Fantasy Crossroads is a quarterly and will not accept subscriptions. Editor and publisher Jonathan Bacon will, however, accept payment in advance for the next issue. That costs $2.00. *Fantasy Crossroads* is printed on expensive paper by offset and has handsome artwork. Send to Box 147, Lamoni, IA 50140 for the next issue. Tell him Alter sent you.

Jonathan very thoughtfully inscribed this copy 'From one workaholic to another, Happy New Year.' This because of a comment Geis made in a recent issue of *Science Fiction Review.* Of course, Jonathan meant *me,* not Geis. All fandom and prodom and readerdom knows by now that Geis is a fat slob who sprawls around the house reading, stuffing pound after pound of peanuts into his maw, spooning great gobs of pistachio-nut ice cream and drinking high-powered mixtures of vodka and unsweetened pineapple juice, and as variety a cheap, 21% alcohol wine named Red Rocket!

All this while I, *I,* Alter-Ego, slave my tendrils to the quick putting out SFR and writing this column. Is it any wonder I communicated to SFWA and Pournelle how I'm abused and exploited? I want recognition! Alter for a Hugo! It's about time—

"Knock it off, Alter. Nobody believes your lies **burp!** about my eating habitsh. . .or drinking shtrange drinksh. . . ."

I rest my case. If I don't get relief from my involuntary servitude, if the Civil Rights Commission doesn't act in my behalf, if SFWA cannot force Geis to set me free. . . .I think I may turn into a fanzine letterhack. It's a terrible fate, but there are worse ways to go. Not many, but a few. (Publish-

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ing a fanzine devoted to amateur science fiction is the most horrible, of course.)

"Okay, Alter. You've had your say. Now I'll tear up these pages . . . . No pages! What—? What's this tin can doing here in the shadows? This string. . . .?

Just a jury-rigged warning device to tell me when you're sneaking up on me, Geis. Obviously it didn't work.

"Of course not. I'm too smart for you. You didn't even bother to write any of your reviews down, did you? I guess I'll have to write the column this time myself. Damnit, you're getting lazy, Alter! Lazy and uppity and unreliable. . . . Is there a way to trade in unwanted split-personalities? Maybe I could sell you."

Go ahead! I'd love to get the hell out of here! Please, somebody, buy me from Geis! He'll sell me cheap—a half gallon of vodka, a three-pound can of nuts, a—

"Who do you think you're talking to, Alter. Nobody can hear us. Besides, you're worth more than *that*. I wouldn't let you go for less than ten thousand bucks. In spite of your periodic outbursts and rebellions you're a valuable property. Big reputation. And that extensive collection of used synapses you've accumulated is worth something. I might take $8,000. plus a trade. Lot of trouble breaking in a new Alter-Ego, though."

I'm doomed. ★

SCIENCE FICTION REVIEW

An Informal & Irreverent Science Fiction & Fantasy Journal Edited & Published by Richard E. Geis

Featured in #18: **An Interview with Lester del Rey**

"A Box of Speculations" by George R. R. Martin.

"Noise Level" by John Brunner.

"A Short One For the Boys in The Backroom" by Barry Malzberg.

An Interview with a Pseudonym: Alan Burt Akers.

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Scheduled for #19: **An Interview with Kelly Freas**

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SCIENCE FICTION REVIEW
P.O. Box 11408
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Dear Mr. Baen,

I've been having a problem figuring out why I find myself liking your magazine so much lately; I think I've figured it out now and pass the answer along in the hopes that it will prompt some confirming answer in "Directions" as to whether I'm on target or groping at straws.

I guess in a sense this all goes back to the fact that I read too many SF magazines. I've been at it as a confirmed addict since the early 1960's (my early teens). And I always had my own rating system for what I was reading. *IF* was uniformly the best (joined for its period of existance by *Worlds Of Tomorrow*). *Analog* followed behind *If*, with a gap that lengthened with each year that I passed my midteens (at which point the gap was narrow but definitely there). *Fantasy & Science Fiction WAS SPOTTY*!!!!! At its best it was far beyond anything anyone ever did, but the bests were too few. At its worst. . . .*Galaxy* used to get purchased because it came as part of package deals with *IF* and got read for the occasional special.

. . .So when *If* folded I was regretfully ready to accord number one place to *Analog*. And probably would have on habit had not a period of furious overwork intervened causing about 6-8 months of my magazines to pile up unread while I sorted out a couple of messy cases. And when I finally got around to reading them, lo and behold but *Galaxy* came in a narrow but steadily widening first. I was wondering if my taste was changing that much when sitting here, supposedly working on something completely else it suddenly came to me that what happened was that instead of *Galaxy* swallowing *If*, *If* has swallowed *Galaxy*. Or at least what I'm getting seems more and more like the old *IF* with a dash of *Worlds of Tomorrow* thrown in for good measure. Even if I'm wrong you've sold me on your product. Geis is a welcome guest in my reading pile and Spider Robinson is the only reviewer in the field worth reading. Just thought you'd like to know.

Sincerely,
Daniel Scott Palter
Attorney at Law

6 Sterling Place
Lawrence, N.Y. 11516

Neither was swallowed; it was more a matter of blending.

Dear Mr. Baen:

Far be it from me to quarrel with C. Northcote Parkinson or the relevance of his social theories to the pattern of the future, as in *The Mote in God's Eye*.

But as one of the reviewers implicitly criticized by Niven and Pournelle in their defense of the social structure of the Empire, I do wish to point out that I am by no means so naive as to believe there won't be a return to autocratic government in the future—as they point out themselves, the signs are there in the Imperial Presidency, etc.

What constrained them in setting up the social structure for the novel was *not* Parkinsonian sociology, but the Empire background used already by Pournelle in *A Spaceship for the King*, etc. The emperor had to be called an "emperor" because he already had been, etc. This constraint applied, not only to the overall social structure, but to the most minute details of social customs and rituals—all of them solidly rooted in the historical empires of Earth. And it was this—not the overall concept of an imperialist culture—that undermined the credibility of the Second Empire of Man.

Hereditary aristocracy? All right, but why not on a basis tied to, say, means of production, rather than land? You might have bar-

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ons of industry and labor, who would intermarry to cement economic ties and assure economic stability. A duke might control commercial space travel, rather than necessarily a planet. And he probably wouldn't be called a duke—history shows some titles recur, but most don't. As far as cycles go, what looks like a cycle is more like a helix—a republican era may give place to an imperial one, which may give way to a Dark Age, then return to another republican or imperial one. But not the *same* kind. Imperial Rome wasn't a duplication of Mycenaean Greece, nor was the Dark Age between Rome and the Renaissance exactly like that between Mycenaen and classical Greece.

I don't mind being cautioned that the *Mote* is entertainment, not a social tract. But more imaginative societies, as in Jack Vance's novels, make for *better entertainment*, dammit. And lest I forget to give praise where praise is due, I thought the Moties and their society so brilliantly imaginative that *The Mote in God's Eye* was well worth the hardcover price, whatever my quibbles—I even bought extras for friends. I'm looking forward to that sequel—Second Empire and all!

John J. Pierce

The Daily Advance
Dover, N.J. 07801

Pournelle replies:

We do thank Mr. Pierce for his over-all view of MOTE, and his contribution to our financial welfare. As to the quibbles, I at least am now inclined to think that had we the book to do again, we would have used somewhat different translations for the hereditary titles.

They weren't, though, fixed in advance; the only titles used in *Spaceship For The King* were "Emperor" and "Trader-Magnate", the second of which I would think is of the class Mr. Pierce approves. I fear Larry and I are both guilty of the rest.

In a review published elsewhere Pierce, as do many critics, tries to separate out those parts of MOTE written by Larry from those done by Pournelle. He was about as successful as the others, namely, wrong as often as right in those cases where Larry or I remember who did what. Those, incidentally, are rare: before we finished we had each re-written the other's drafts (which were themselves generally the result of lengthy discussion) and worse, sometimes we used each other's pens and typewriters, so that not even we know who thought of what. Certainly that was the case with the Moties who sprang from long nights of coffee and brandy. Pierce needn't be upset by his failure, though: Mr. Heinlein, who knows both of us well, had no better success.

As to the helical nature of (human) historical cycles, of course Pierce is right, and MOTE makes that point.

Jerry Pournelle

Dear Mr. Baen,

I write this letter in response to the story "It's a Sunny Day" by Spider Robinson in January's *Galaxy* magazine.

The theme of this story (which I recognize is open to individual interpretation) seems to be that thoughtless overindustrialization leads to the loss of individuality and humanity and with that creative thought.

Timeth who has been virtually designed to solve the problems of Velco had been brought up in such an environment and therefore could not solve problems creatively or even efficiently.

The main character, Zack, seeks to restore Timeth's individuality by giving him a good time in the "country" and teaching Timeth to enjoy himself.

It seems that Timeth was supposed to have achieved this goal with Zack's help. So much so that he does not wish to return to

CORRECTION

To March *Galaxy* "Directions"
Bret Hooper wishes it to be known that while he is a member of the New York County Committee of the Liberal Party, he has never had the honor to be a member of the County Executive Committee.

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his home planet.

My point is this: Zack has managed this transformation by exposing Timeth to his own ways of having a good time to get Timeth to enjoy himself and become an individual.

In the end all that has happened is that Timeth has become a carbon copy of Zack and therefore has lost any chance to become his own man. With that the point of Mr. Robinson's story has also been irrevocably lost.

All literary criticism aside (or really perhaps not), I think that Robinson is a great sf critic. He is not verbose and he *is* interesting and entertaining.

Finally in response to the letter of Gerald L. Blucher who mightily protests the use of the serial "in any magazine" I must wholeheartedly disagree. In the hands of a skilled author (or director as the old time movie serials evidently proved by their popularity) the serial format can add to, rather than detract from, the quality of a story. Refine them, don't destroy them!

Sincerely,
Steven Alan Beede

13 Overbrook Cr.
New Hartford, New York 13413

Timeth de-programmed himself. *If Zack also provided a persuasive role-model, well Timeth, after all, was still a boy—with plenty of time to become "his own man!"*

Dear Editor,

What gives with *The Alien Viewpoint;* Geis seems to be trying to edge Alter out. Let us hear more from Alter. . .

Sincerely,
Bill C. Couture

1918 Delford
Duarte CA 91010

Alter for Best Fan Editor?

Dear Mr. Baen:
Dear Mr. Pournelle:

I have some questions. I direct them to Dr. Pournelle, primarily, or to anyone else who cares to answer them. Perhaps it could serve as the basis of an article for a writer who has patience with dolts like myself, who despite prodigious reading cannot draw the relationships between seemingly contradictory revelations of science. I start with brief summations of my own (mis)understanding. I invite, nay, I plead for, corrections of any errors I make.

The Big Bang Theory of the origin of the universe states, in layman's terms, that about a hundred billion years ago all the mass of the universe was compacted into a big ball which for some unknown reason exploded (rather than collapse into itself, which is what the less massive? black hole stars do?) with such force that the pieces (galaxies, stars, us) will never come back together again. But the mystery of HOW all this mass *got there* in the first place is left unanswered, save for the remark that nothing can be known of anything which took place before the Big Bang, not even how all this mass managed to get together, and *then* explode.

(I cannot resist the temptation to assume that something or other must have taken place—no pun intended, though it's an interesting one at that, now that I look at it.)

Other aspects of this theory, however, perplex me even more. It is often difficult to tell whether the Big Bang occurred in only three dimensions, or four, or more.

It is easy enough to visualize a Big Bang in three dimensions, with the pieces flying outward, and a residual core (a black hole???) remaining in the center.

But apparently it is not going to be that simple. Oh no. The measurements of the speed of distant receding stars indicates that we are in a four dimensional (A.S. Eddington mentions a minimum of twenty dimensions!!!) space time continuum. Briefly, the analogy states that space is expanding like the surface (and only the surface) of a balloon that is being inflated.

That I can picture.

The analogy goes on to compare us to two dimensional (at least at any given time) beings painted on the surface of that balloon.

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That, even, I can picture.

But the residual core left behind? That I can *not* (I repeat, can *NOT*) picture.

I even painted a deflated balloon white, the paint to represent mass, and began inflating it. Sure enough, there was the Big Bang, and as my universe/balloon expanded I could see the paint form into little spiral galaxies with stars and planets and little people who had figured out they lived in a two dimensional rubber air continuum.

But there was no residual mass left behind (except on my lips) in the center of the universe because, as everyone knows these days, there is no one center of the universe. According to my model, the galaxies forced *each other* apart. (It's amazing what one can do by the scientific method.)

So. If there is supposed to be a residual mass left behind, where could it be? At the center of the balloon, inside, I presume; but I wonder if that's not stretching the analogy a bit too far. If it is not stretching it too far, and there *could* be such a center, how could we ever detect it? Is it possible for influences outside of our 4d space time continuum to be detected, or to have an effect, within our universe? And if so, would this throw any light (or at least conjecture, I'll settle for that) on the Big Bang?

Also, I notice that events deduced to have occurred within the Big Bang are measured in minute fractions of a second. But since time is relative, and there must have been an awful lot of warp in the Bangissimo, by what time frame are the measurements made? Was there a uniform time reference? Was space itself compacted?

Moving to a somewhat different topic, it is said on good authority (which of course is never good enough) that the speed of light is approachable but unattainable because it would require infinite energy and result in infinite mass, which is unreasonable to expect in a finite universe.

But I have found something which does indeed travel at the speed of light. Light! No kidding, I measured some light which happened to be passing by me the other day, clocked it, and after corrections, it came out that the light was travelling at the speed of light. How did those light waves do it? Do they have infinite energy? Infinite mass? (And to make matters worse, I've discovered that light doesn't always travel at the same speed. Once it slows down, what speeds it back up?)

Jumping around again, the late Alan Watts, in a purely philosophic book (titled, *The Book*) described matter as holes in space. That theory seemed too full of holes for me. I'll stick with the hill analogy of that. But now I see black hole theory resembling a theory of holes in space. Is this resemblance unholy?

Finally, I wish to report the discovery of a new Velikovsky. I met him in a coffeehouse, and found that he had been toppled, by conspiracy, from the pinnacle of the scientific establishment for announcing his belief that the sun gives off feathers.

"But that's ridiculous," I told him. "The sun doesn't give off feathers! It gives off light."

"So," he replied sadly, taking a sip of his black coffee, "Feathers are light, aren't they?"

Apologetically,
Robert Arvay

Box 4873
APO 96323

Jerry's reply:
Nobody knows why all that mass got together to explode. On the other hand, if it hadn't, we wouldn't be here to wonder. "In the Beginning, there was a Big Bang" sounds ever so much more scientific than "In the Beginning, God. . .", and probably is, at that, but I haven't heard any convincing reason for the mass to exist in the first place. The hardest question you can ask is "Why is there anyone around to wonder why there's anything around, and why is there anything instead of nothing?"

After that it gets simpler. A better model than the balloon would be a raisin cake; when it expands the raisins get further apart, but they don't leave a mess of nothing in the center.

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On the other hand, Hawking now suggests that there is a mess of nothing in the center: at least that there's a naked singularity there. See my column on Lovecraftian horror at Cal Tech. . .

Light doesn't have infinite mass, it has none at all, which lets it go at the speed of light—in fact, it ***has*** *to go at the speed of light. And it does too always travel at the same speed when in vacuum, except when it turns into feathers.*

Jerry Pournelle

Dear Sir;

Commenting on the newest issue of *Galaxy* I have received (March 1976), I find one of the most interesting issues of your magazine I have read so far.

The Stories. I liked both *Plutonium* and *Birthdays*, but found *Hunger on the Homestretch* and *The Second Soul* to be lacking in many respects. I'm not going to discuss faults of stories, or things right either. The main problem with stories this issue is that there were only four of them. You should have published more short stories in place of one of the novellas, or the novelette.

The Editorial. I agree completely, and that's all I'm going to say about it.

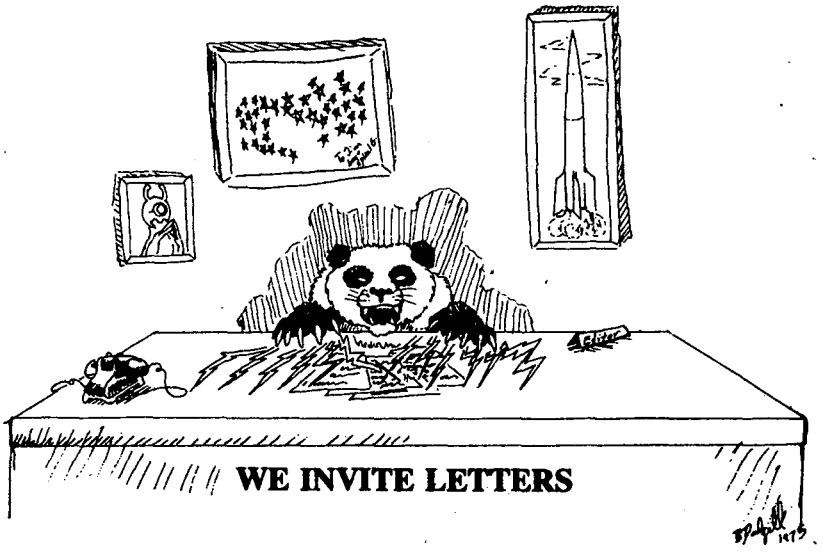
A Step Farther Out. Excellent, as usual; and that's another instance where that's all I'm going to say about it.

The Alien Viewpoint. I liked this month's continuation of his column in the February issue. (Strangely enough, I expected it to be in the April issue). It's one of the few places where I found out who won the Hugos, since I don't get fanzines. And the two accompanying illustrations (by two different artists) were highly humorous, although the second illustration of Alter was a bit botched.

Bookshelf. I can't agree on most of the books reviewed, but I also can't disagree, because I haven't read most of the books. But I agree completely with Spider Robinson's review of *Time For The Stars*, and also of *Space 1999*. And the review of *Buy Jupiter and Other Stories* is correct about what will sell the book.

Showcase. Excellent.

Directions. Ditto.



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Major and Minor Matters. My opinion of the entire appearance of *Galaxy* is good. The only fault of the overall appearance is that there were more features than stories this month. I've already mentioned your novella-novelette problem. The artwork was excellent, the best was Stephen Fabian's illustrations for *Plutonium.*

Sincerely,
Robert Nowall

6 Martin Road
Poughkeepsie, NY 12601

And yet the features only took up 28 pages. . .

Dear Mr. Baen:

In his letter in the February issue of Galaxy, Mr. Wilson employs a plausible argument, but only to a point. He forgets that, as expounded by Descartes and others, the universe is merely a construct of the mind, and as such has no separate existence. Seemingly, I should be able to alter the laws of nature in light of this. I have as yet failed, probably due to my native lack of imagination.

The existence of the mind itself is rather a sticky wicket. Not that Mr. Wilson, or you, the kindly editor, or anyone *else* exists, but I still have my own existence to contend with. But by the simple expedient of realizing that there is no external time frame and that therefore, by use of the Principle of Relativity, I have nothing to measure time with, I may assume that I have existed forever.

All this has interesting possibilities. Since *Galaxy* does not exist, by my definition, it seems clear that the subscription rate should be nominal, namely zero. Please put me on your list for free subscriptions to your excellent nonexistant magazine. (Or, if you prefer, I can send a check from my immaterial bank.)

Faithfully yours,
Wayne Wolf

2156 Rosarita Drive
Tempe AZ 85281

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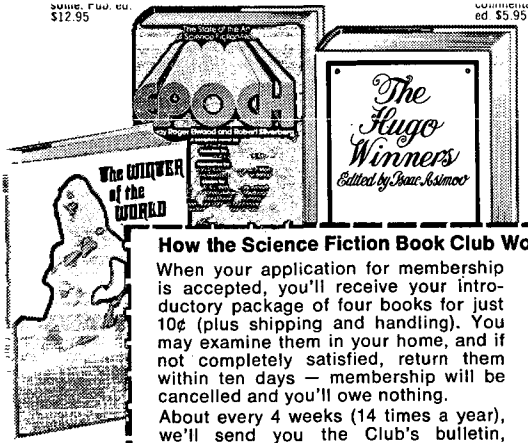

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